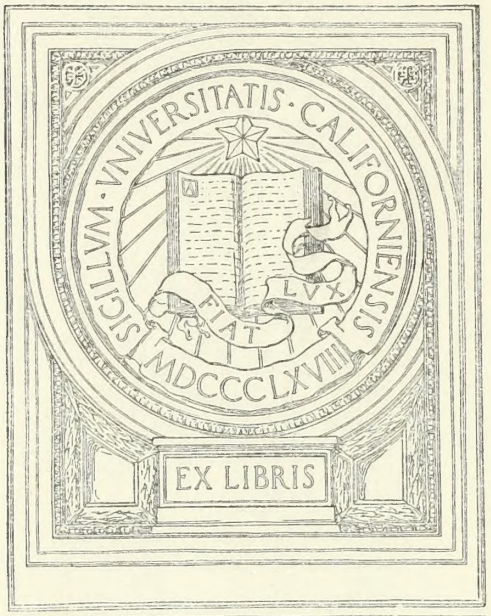
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*Ault, G. W. & Madigan, E. P.: Am. J. Surg., 77:352, 194

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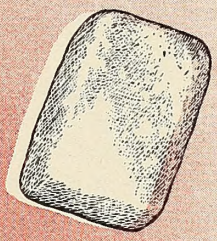
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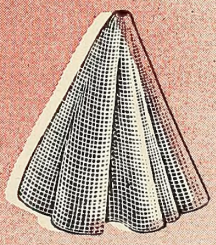
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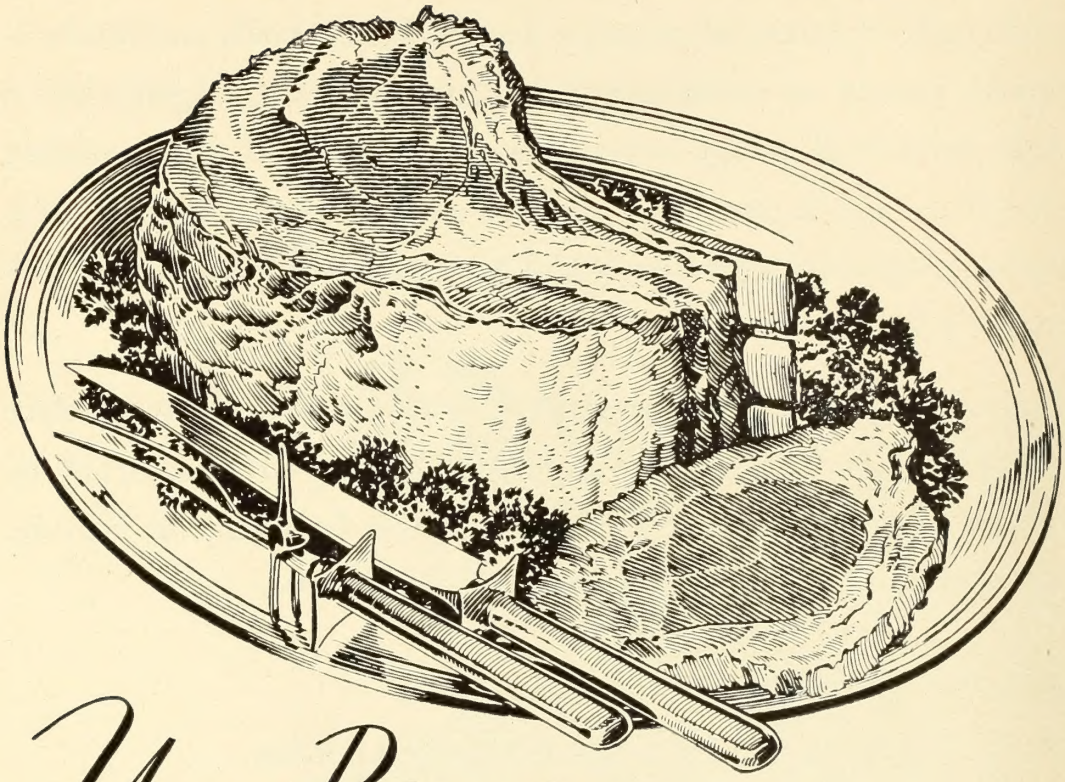
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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 7, NO. 1 JANUARY, 1950

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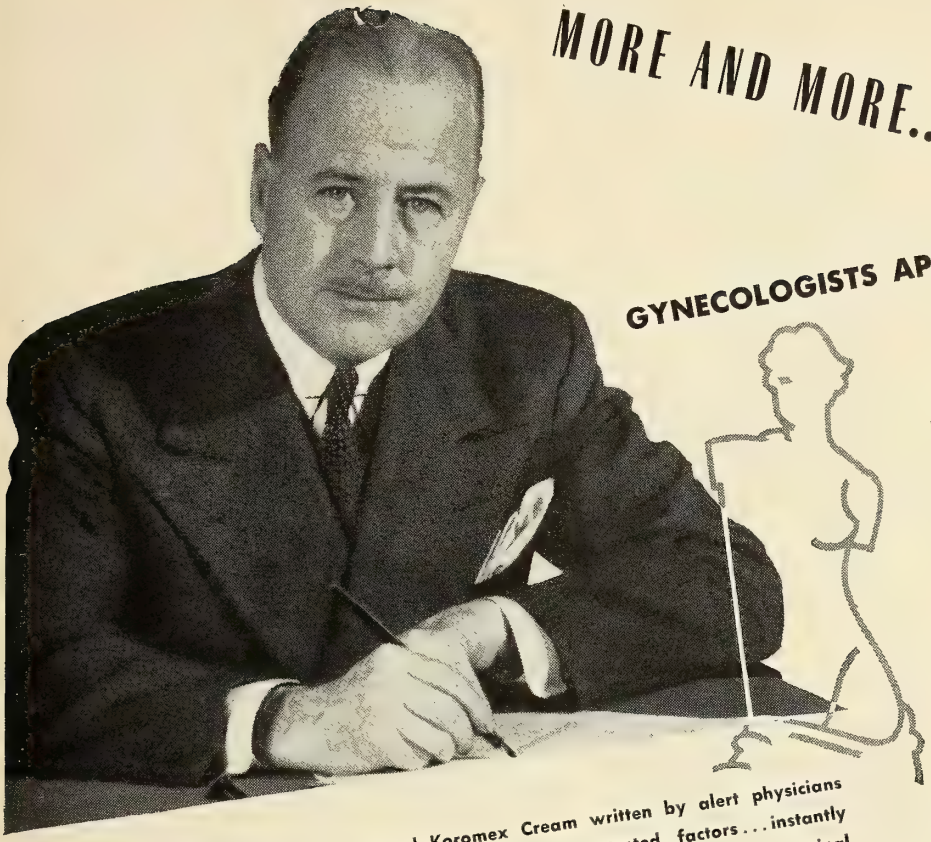
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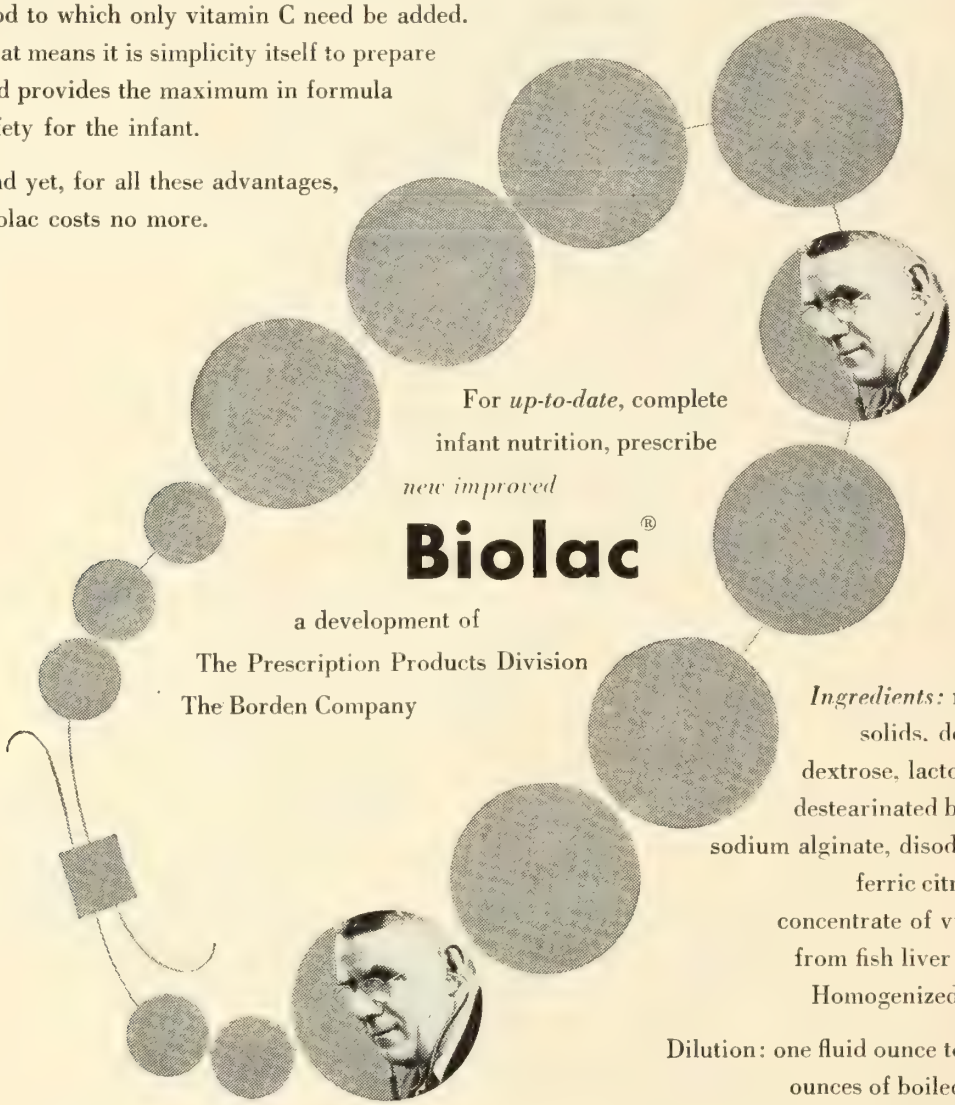
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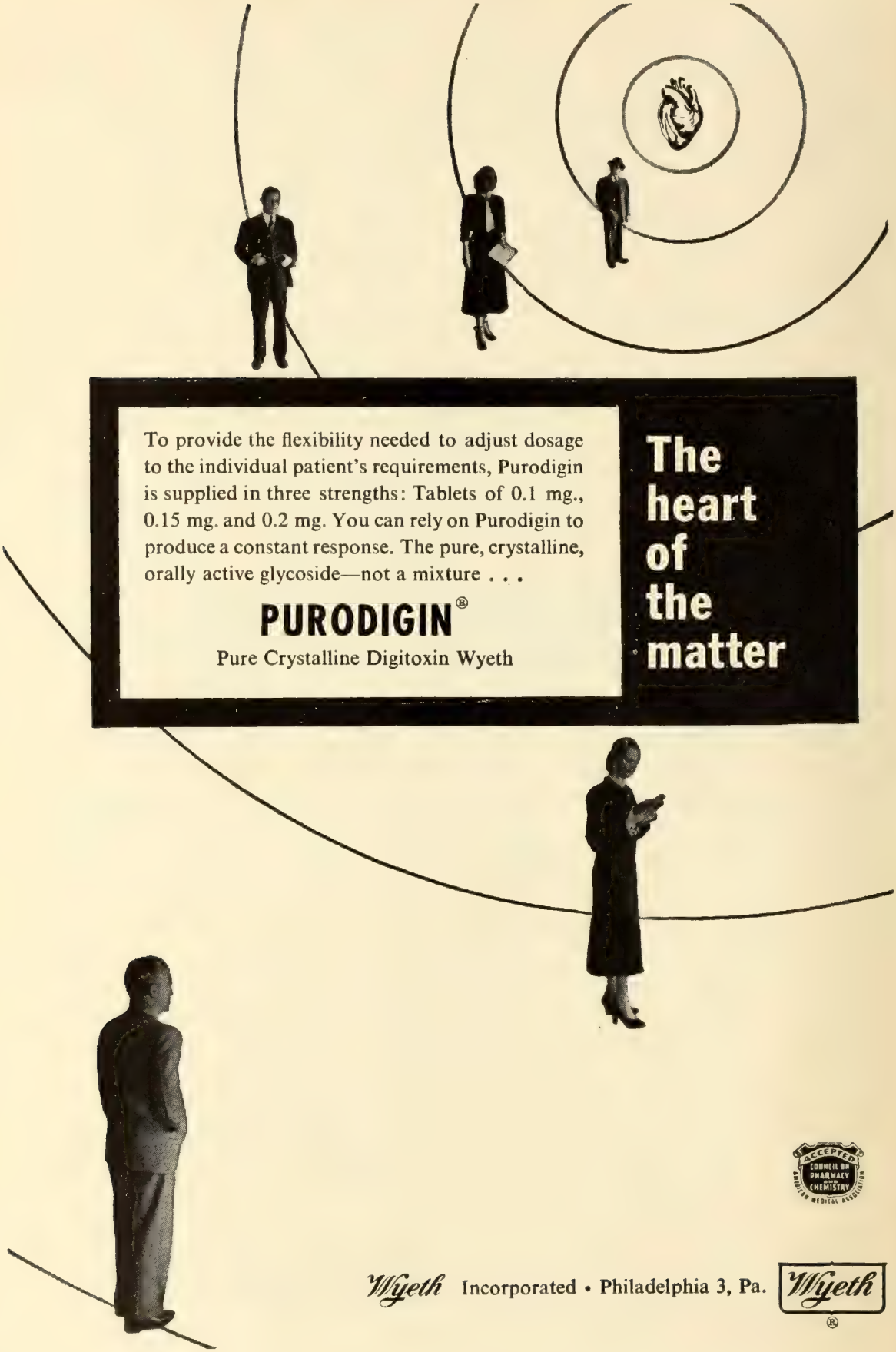
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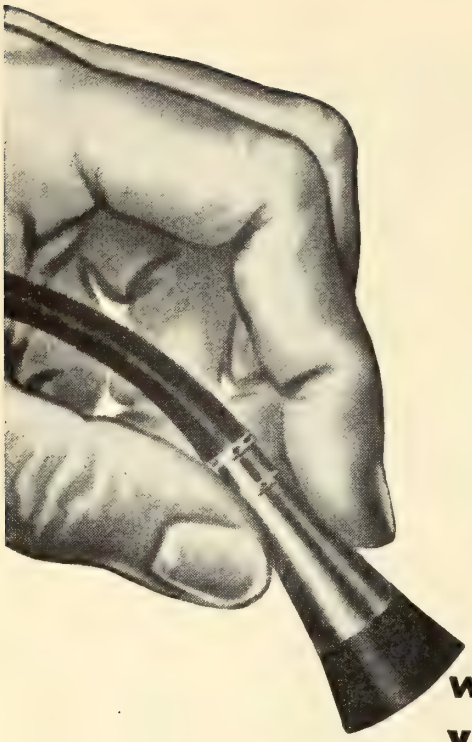
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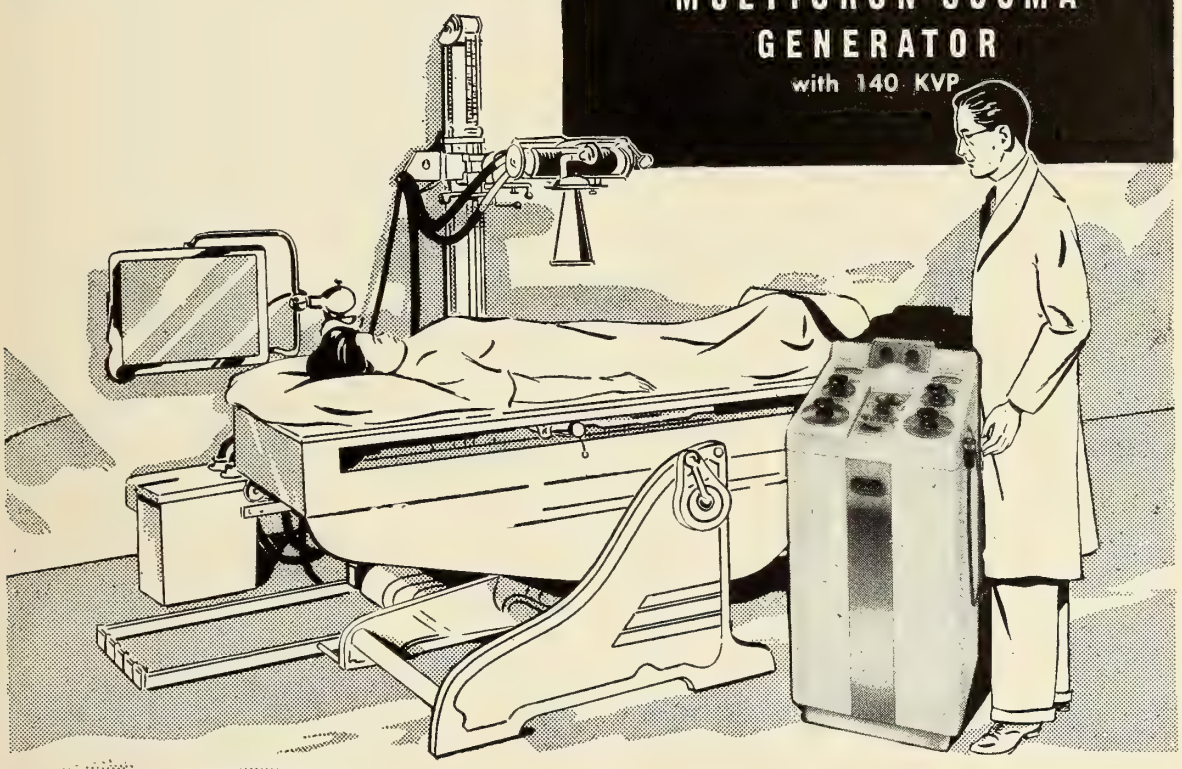
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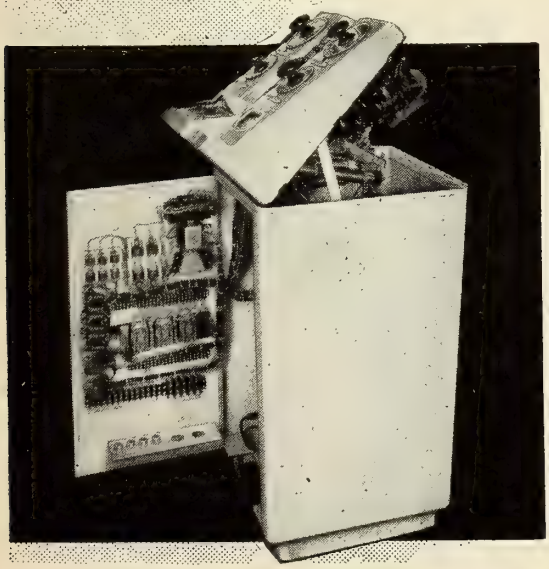
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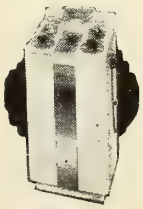
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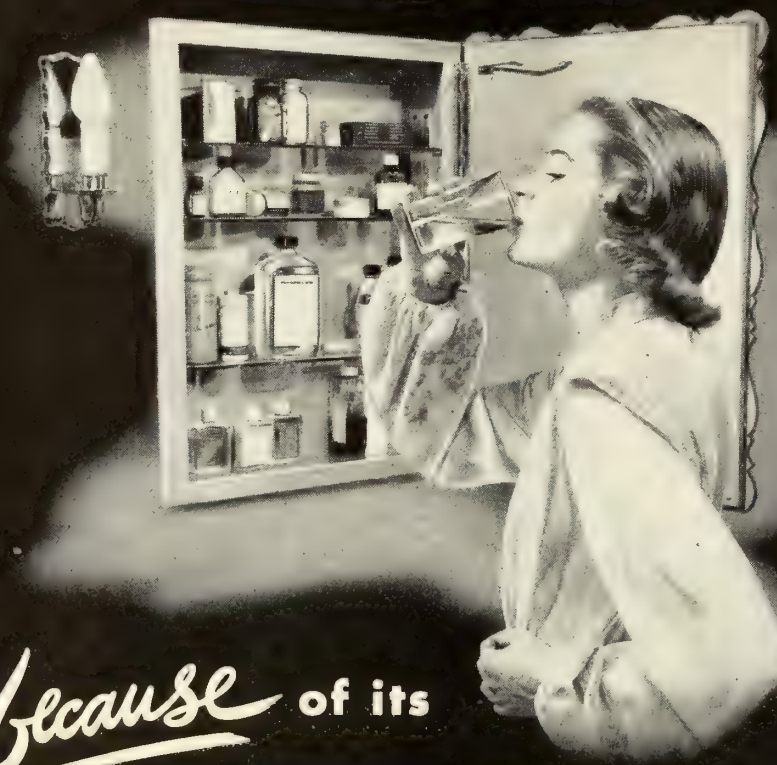
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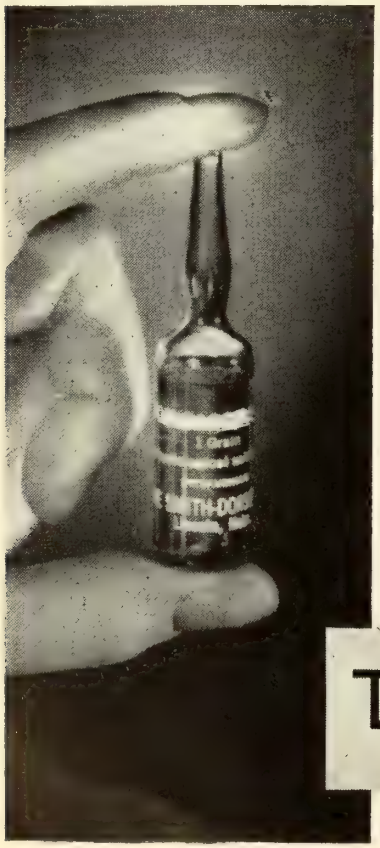
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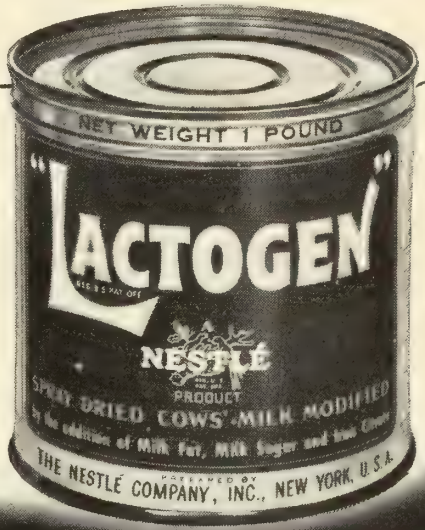
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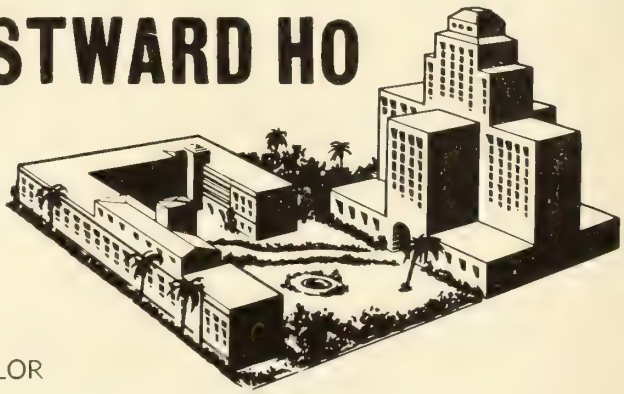
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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

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BRUCELLOSIS

(Synonyms: Undulant Fever, Malta Fever, Mediterranean Fever, Texas Fever, Rio Grande Fever, Neapolitan Fever, Brucelliasis.)

A. G. BOWER, M. D.,
Pasadena, California

THIS disease is unique in its history in that its presence on the island of Malta first attracted attention and led to it being named "Malta Fever", though undoubtedly it had existed for many years previously along the shores of the Mediterranean. However, in 1913 the section on tropical medicine of the International Congress of Medicine at their London meeting recommended that the name be changed officially to undulant fever, a name first suggested by Hughes in 1896. Through usage, brucellosis is the appellation most commonly applied today.

It has only been during the past 30 years that we have come to recognize the increasing clinical and economic importance of this disease, though in the Mediterranean area the disease has probably existed for ages, and it has now become widely disseminated in this country.

Ten to twenty per cent of the population will react in some degree to skin testing with the various antigens used in the United States, depending upon the geographical location in which the tests are run. By no means are these positive skin tests to be interpreted as indicating the presence of active disease.

Brucella organisms are widely distributed in nature. They are also highly infectious from intimate contact, if one may judge from the number of laboratory workers accidentally infected from year to year while investigating the disease, and the large number of packing house employees coming down with it. Nevertheless, relatively few people, who are not handling infected animals, in the population at large have ever had clinical evidences of the disease. This indicates puzzling gaps in our knowledge of the epidemiology and other factors directly relating to infection with brucellosis. In my opinion, many data published as establshed facts concerning brucellosis, will in the future prove to be untrue. A great portion of our knowledge of this disease is relative, not absolute, but actual knowledge is gradually increasing, and new facts are being established from time to time.

Read before the Third Annual Lectures in Medical Science, Lois Grunow Memorial Clinic, Phoenix, Arizona, February, 1949.

HISTORY

It is stated that an infectious fever occurring in Thasus in ancient times was so accurately described by Hippocrates that undulant fever is clearly delineated as the clinical picture. The modern history dates from 1861, when Marston described the illness in his own person, which he contracted two years earlier along the shores of the Mediterranean. Soon thereafter, Veale was diagnosing and reporting upon the signs and symptoms of a specific disease seen in people from Malta, Cypress and Gibraltar, and who returned to England because of it.

Bruce succeeded a few years later in isolating the causative organism from the spleen of a case. He fulfilled Koch's laws with this organism and in 1893 named it Micrococcus melitensis.

In classic monograph four years later, Hughes named the disease undulant fever.

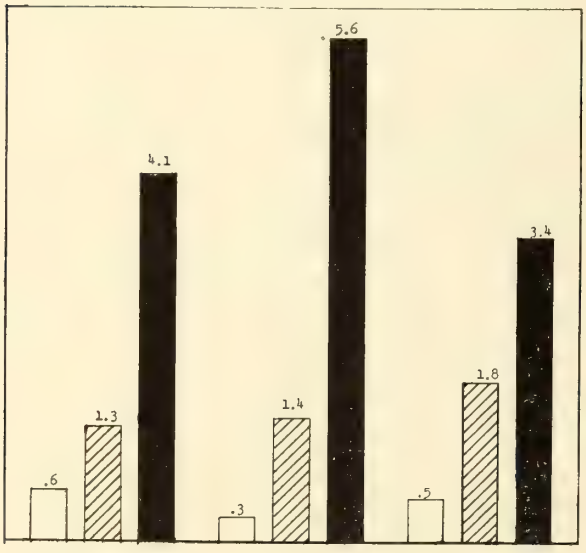
In 1906, Zammitt, a member of the British Mediterranean Fever Commission, appointed two years earlier, reported that M. melitensis was present in the milk of the goats on Malta, that it survived for long periods outside of the body, and that it was excreted in human urine.

In 1897, Bang met the requirements of Koch's laws in cattle with an organism he had recovered from a cow suffering from contagious abortion. In 1914, Traum did the same thing in the contagious abortion in hogs. Later, Alice Evans in this country proved that M. melitensis and the Bacillus abortus of Bang were closely allied variants of the same organism. Meyer and Shaw confirmed this in 1920 and suggested the generic name Brucella for the entire group.

In 1924, Keefer reported the first case of brucellosis proven to be due to organisms other than M. melitensis. Alice Evans first identified the germ isolated from this patient as B. abortus, but Huddleson later established it to be B. suis. Investigators were on the lookout for such cases since Schrader and Cotton in 1911, and Smith and Fabian a year later, after recovering Bang's bacillus of contagious abortion from the udders of cows with no apparent inflammatory or other disease, had pointed out the probability that human cases would probably occur from drinking raw milk.

In 1899, Cox and Sader first used the agglutination test in the diagnosis of human brucellosis. They found it positive in a soldier returning from Puerto Rico. This was followed by a series of positive cases seen in soldiers returning from the Philippines during the next six years, during which time Craig also reported the first endemic case, which occurred in Washington, D. C. Next Gentry and Ferenbaugh recognized cases in Texas, and in 1913 Yount and Looney in Arizona. However, the report of an outbreak in Phoenix in 1922 by Watkins and Lake, forcibly focused attention on this disease within the United States and established it as a clinical entity in this country. As a result, brucellosis became recognized as a common and widespread disease throughout the nation, presumably due to B. abortus.

BRUCELLOSIS CASE RATES
Los Angeles City and County*
San Francisco City and County
1933 - 1947



*Exclusive of L. A. City. Rate per 100,000 population 2-18-1949.

The Organism. Three generally recognized species of the genus Brucella are accepted: the caprine or goat strain, Brucella melitensis, also known as Alcaligines melitensis; the porcine strain, Brucella suis, also described as B. melitensis var. suis; the bovine strain, Brucella abortus, otherwise known as Bang's bacillus, Alcaligenes abortus, or B. melitensis var. abortus

While described as rod-shaped, coccal, coccobacillary, or bacillary forms occur in single cultures of any of the three species: these characteristics vary with age and different cultural conditions, but one type usually predominates in any given culture at one particular time.

They are Gram negative, nonmotile, nonspore forming, bacteria that are micro-aerophilic upon initial isolation from the host, growing best in an atmosphere containing 20 to 25 per cent CO_2 in primary cultures. These organisms prefer mesenchymal structures within the animal body and they are strictly parasitic.

Due to the well-known proclivity of brucellae to produce disease in laboratory workers investigating suspected material, commercial laboratories are none too fond of attempting to isolate the species. The result is that, in practice as a rule, only occasional cultures are obtained, but in the hands of those especially interested and technically proficient, their cultivation has not been too difficult, even during afebrile periods, a fact not too well known to workers outside the field. Cultures should not be discarded as negative for four weeks. Once the organisms have become adapted to subculture they grow readily.

Further comment anent their physical characteristics will be limited to two statements: (1) lactic acid fermentation of contaminated milk destroys the organism during cheese making within a few days in most instances, though

cases are cited in which two colonels ate goat cheese on Malta and came down with Melitensis infection in London a few weeks later; (2) organisms outside the body contained within feces or other organic material may survive for many weeks.

Definition.—Brucellosis is an acute, subacute, protracted or chronic disease caused by one of the brucella organisms, primarily occurring in goats, hogs, cows, or sheep, and incidentally in man or other animals.

Pathogenesis.—The commonest accepted atria of infection are through abrasions or cuts in the skin, through the intestinal tract, or through the respiratory system. The highest morbidity is in persons who directly handle animals or their secretions, particularly slaughterhouse workers. Water-borne epidemics, though rare, have occurred. Raw milk has long been accepted as probably the commonest source of the infection in people not handling host animals. The evidence as to when, how, and why this happens is confusing. In the hands of various investigators, experimental feedings of Brucella abortus-infected raw milk have failed repeatedly to induce the infection in man. Furthermore, it is difficult to reconcile the increasing incidence of brucellosis occurring in our population with the increasing pasteurization of milk supplies and the continuing improvement of the nation's dairy herds by the constant weeding out of infected animals.

Until the present, insufficient steps have been taken to differentiate the specific causative organism in the reported cases of brucellosis, as to bovine, porcine or caprine strains. The application of more uniform and better standarized procedures to this problem is urgently needed. There is probably no other common disease in this country concerning which the profession is in such hearty agreement in their belief that the diagnosis must be established finally through laboratory methods. Yet if aliquot portions of blood from the same patient be submitted to various good laboratories for the same diagnostic procedure relative to brucellosis, e. g. an agglutination test, the widely different results reported will be astounding.

Brucella abortus has been isolated from a number of different animals, domestic and wild, including fowl.

Brucella suis, primarily a disease of hogs, is also found in man, cattle, horses, dogs, and fowl.

Brucella melitensis, ordinarily a disease of goats, occurs as well in sheep, cattle, swine, wild guinea pigs, and man. It is much the most virulent organism of the three for man, producing serious lesions particularly osteomyelitis, and is much dreaded in Argentina, where it is common.

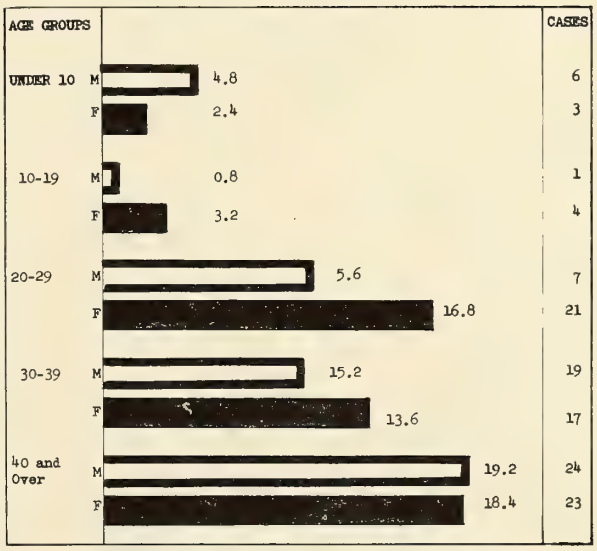
The cow, complacent animal, is not averse to picking up and passing on, virtually unchanged, each one of the three species of Brucella.

Minute quantities of infected inocula of any of the strains produce growth quickly in nine to 11 day chick embryos, and this is being used more and more in establishing the diagnosis.

Brucellae entering the blood stream are rapidly removed by the fixed tissue phagocytes of the liver and spleen. They disappear very rapidly from the liver and bloodstream in any quantity, but may be recovered relatively easily for days or weeks from the spleen, lymph glands, or bone marrow. This is likewise said to be true of the urine, but our experience has been otherwise. The growth within, and release from, the cytoplasm of the reticular endothelial cell, either continuously or in showers, accounts for the prolonged and variable febrile course of the disease.

Pathology.—Three types come to autopsy: 1. the acute localized type, particularly ulcera-

BRUCELLOSIS CASES REPORTED
By Age and Sex
1944 - 1947
Los Angeles City



TOTAL CASES 125
TOTAL Male 57
TOTAL Female 68

Source: L. A. City Health Department, Statistics Division. 2-18-49.

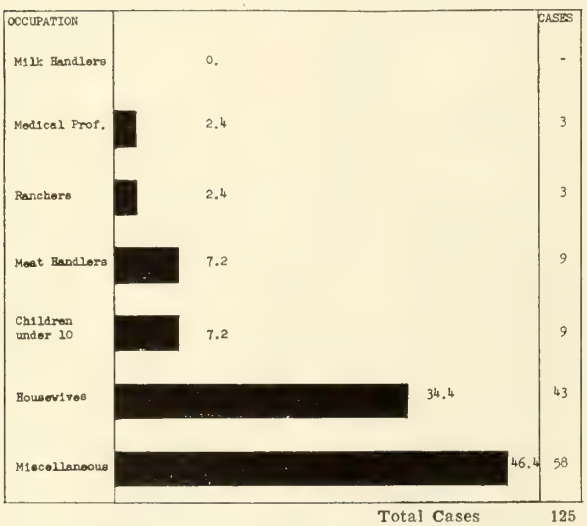
tive endocarditis; 2. the acute septicemic or typhoidal type; 3. the chronic prolonged, lymphogranulomatous type. There are no mortality figures worth quoting but the death rate in this country is probably very low; all cases considered, probably well under one per cent, but the entire concept is inaccurate and conjectural.

The organism has frequently been recovered from the tonsil. Pneumonia of a severe lobar type occurs. Epididymitis, orchitis, arthritis, myositis, salpingitis, oteomyelitis, spondylitis, meningitis, encephalitis and many more have been seen. Essentially the pathologic changes are those of an infectious granuloma with proliferation of the large mononuclear reticuloendothelial cells, with focal necrosis, fibrinous exudate, and occasional hemorrhages occurring.

Incubation period. — While it is true that this has been relatively short for workers accidentally infected in the laboratory, usually five to seven days, it has gradually become apparent that most clinical cases have a much longer incubation period than has generally been believed. Hardy carefully studied 52 cases with regard to the incubation period and found it varied from one to 16 weeks, but only in four was it over two months, and only in one was it less than one month. It is usually about six weeks.

Etiology.—World-wide in distribution, brucellosis is found wherever contagious abortion occurs in cattle or hogs.

BRUCELLOSIS CASES REPORTED
By Occupation
1944 - 1947
Los Angeles City



Source: L. A. City Health Department, Statistics Division.
2-18-49.

It is largely a disease of middle life though it may occur at any age, about 10 per cent being in children.

In those engaged in animal husbandry males are three times more likely than females to contact the disease, but this is not true of people who do not come into direct contact with infected animals, in which event the incidence is the same in both sexes.

More cases occur in farming districts and small towns than in cities, and the highest morbidity is in packing house workers and veterinarians, followed less closely by dairymen and farmers.

The greatest number of original infections occur in the spring when animals give birth to their young, and when they provide the greatest milk supply. It is noteworthy that people who habitually drink raw milk from infected herds rarely seem to suffer ill effect, whereas one drink of the stuff by a newcomer may be followed by an attack of brucellosis. McBryde, Daniel and Poston studied an orphanage in which 210 children were drinking milk infected with B. suis. Ordinarily this strain is presumed to provide a higher attack rate and a more severe disease than B. abortus. However, only two children developed clinical disease; seven developed agglutination titers varying from 1:20 to 1:640; and 13 showed positive skin tests. Two months after substituting pateurized milk, the positive agglutination reactions in all seven had become negative.

Dooley in 1934 also studied 263 boys known to be drinking raw milk from an infected herd. Only two clinical cases developed. Yet agglutination titers ranging from 1:40 to 1:1200 developed in 41 per cent of the boys, and over a prolonged period of observation 15 of them maintained titers of 1:320 or higher with no evidence whatever of clinical symptoms.

While agglutination titers may either drop to low figures or else disappear rapidly after recovery from the disease, or after infected products are removed from the diet, subsequent infections with virulent streptococci or other organisms have produced anamnestic reactions, raising the titers again to high levels, as high as 1:1280 having been notetd under such circumstances.

Huddleson, on the other hand, reported the

agglutination test negative in 29 per cent of 100 bacteriologically proven cases.

There are many reasons for such variations, among which are isoagglutinating or otherwise unsuitable antigens, as well as blocking antibodies which prevent the reaction from occurring, similar to those described in the Rh factor work. Weiner and Race, using identical technics in their original work, showed the effect of heat in potentiating agglutinins in freshly drawn serum, as well as the enhancement of agglutination reactions by substituting albumin for saline solution in all suspensions of antigen.

Classification.—None of the protracted fevers occurring in the temperate zone is more bizarre and protean in its manifestations than brucellosis. Over 150 various clinical signs and symptoms have been described, and these wide variations in different cases have, at times, destroyed their value as diagnostic criteria. Because of this, Eyre prefers to classify brucellosis cases as acute, subacute and chronic. Acute cases are arbitrarily limited to the three month period immediately following initial infection: subacute from three months to one year; chronic over one year. However, to any such classification must be added the great number listed under the heading of subclinical infection, such as those cited above in the studies of Dooley, McBryde et al.

While chronic brucellosis may merely be an attenuated, changed, and prolonged form of the subacute, this is not usually the case. More commonly it is a disease of insidious onset and prolonged course, of such vague and shifting symptoms as to tax the patience, diagnostic ability, and therapeutic approach of the most conscientious clinician. Indeed, proven cases often have so many complaints that it is hard to evaluate and separate the psychosomatic, the neurasthenic, and the hypochondriacal from the real. As these are the same symptoms complained of purely on a psychosomatic bases by the true neurotic; and since there is nothing to prevent these neurotic types of people from contracting chronic, low-grade brucellosis in the same manner as those who were previously emotionally stable; the picture becomes a most confusing one. Therefore, the presumptive diagnosis of brucellosis, (when not substantiated by actual isolation and identification of brucellae, but made by any or all of the other means at our disposal) must frequently be wrong. In these cases of chronic brucellosis, common complaints are those of weakness, excess fatigability, prostration, anorexia, loss of weight, headache, rachialgia, myalgia, palpitation, low-grade fever, night sweats, insomnia, severe depression, and many others.

We still prefer the classification of Giordano and Sensenic as giving us something more definite to work from in the cases we see, viz., glandular, visceral or typhoidal, septic, arthritic, and neurologic. I think it is clear from what has already been said that there must be much overlapping systemically in any such classification, but it is equally true that the undulant fever type is not very common in this country; an abrupt onset and a continuous course is far commoner.

Signs and Symptoms.—The acute type is frequent in this country. While the onset is a good deal the same in all types classified by systems, the symptoms referable to those body structures most involved usually soon clearly dominate the picture.

The onset is as variable as the subsequent clinical course. It usually is with headache, insomnia, mental depression, muscular aching, excess fatigability, shifting joint pains, and a rising daily septic temperature with morning remissions. A relatively slow pulse is the rule. Meningism is common. Once the fever is well established, sensations varying from chilliness to true rigors, followed by drenching foul-smelling sweats, are characteristic and quite consistent. Sudamina and a fine desquamation often result. Many run a septic febrile course from two weeks to 10 months with morning remissions, but with no true afebrile periods. Symptom cycles in the undulant fever type usually last 10 to 12 days with a few days intermission, the intermissions gradually becoming longer.

The tongue is furred with moist margins; the patient appears sick and apprehensive; a congested sore throat, husky voice and slight cough are common; periarticular pain and arthritis may dominate the picture; asthenia, distention, indigestion and constipation occur, accompanied by increasing anorexia and weight loss; spongy bleeding gums are common; swollen parotids are seen; the enlarging spleen may get painful; progressive anemia sets in; only good nursing will prevent the development of sordes or bed sores.

The erythrocyte count drops 20 to 40 per cent.

In acute or complicated cases the leukocyte count is elevated as a rule, though malignant leukopenia has been seen; otherwise normal counts with 40 to 50 per cent lymphocytes are the rule.

Complications and sequelae are many and variable, but among more serious and distressing ones may be mentioned subacute bacterial endocarditis, acute congestive failure, lobar or broncho pneumonia, atypical pneumonia, severe chronic bronchitis, meningitis, encephalitis, mastitis, epididymitis, orchitis, salpingitis, habitual or occasional abortion, and commonly with the caprine strain, severe osteomyelitis, often seen in cases in the Argentine.

In most instances differential diagnosis may only be made with accuracy with the assistance of laboratory methods. Among entities in this area commonly requiring differentiation, may be mentioned: typhoid or paratyphoid, miliary tuberculosis, endemic typhus, Q fever, pulmonary or systemic coccidiodomycosis, subacute bacterial endocarditis of other origin, atrophic or rheumatoid arthritis, rheumatic fever, infectious mononucleosis, Hodgkin's disease, Boeck's sarcoid, tertiary lues, and other rarer conditions. Its presence must be suspected and ruled out in all obscure or continuous fevers of unproven etiology.

Skin testing.—Reliance upon this procedure alone as being diagnostic of existing active brucellosis is erroneous and dangerous. Neither the antigens used, nor the methods employed, have been universally standardized or their interpretation agreed upon. Tremendous numbers of people entirely without manifestation of any clinical disease have positive skin tests; bacteriologically proven cases with negative skin tests have been reported frequently. When skin testing is routinely done, the danger of sloughing and of severe systemic reaction ever must be kept in mind whenever large doses or too strong material are used. While a few continue to use intradermal testing with Brucella abortus vaccine, most have abandoned the method in favor of Huddleson's antigen. Known as brucellergin, it is described as a "suspensoid of nuclear protein." A tiny intradermal wheal is made and read at 24 and 48 hours. Its reactions are not severe and it does not produce skin sensitivity. Repeated skin testing with vaccines commonly employed, often, but not invariably, increases the agglutinins in the blood of that patient. Thus the effect produced either through skin testing, or by using vaccine therapy, may invalidate aid needed from the laboratory at a later date. It would appear to me that intradermal testing and indiscriminate vaccine therapy, as at present widely used, lead to erroneous interpretations of both diagnosis and therapeutic efficacy. It has yet to be shown that a positive skin test in brucellosis is of any greater significance relative to this disease than a positive tuberculin reaction is in relation to tuberculosis. The method has caused so many incorrect diagnoses, and has led to so much mental and economic misery, that we rarely employ the method any more.

Similarly the opsonocyophagic index and the complement fixation tests have been weighed and found wanting. Neither proves the presence or absence of active disease, but merely that either a non-infected susceptible status presumably is present, or that operative immunity appears to be in action: patients with proven B. melitensis infection have presented the picture of immune subjects; tularemia causes increased phagocytosis; neither test proves brucellosis present or absent.

Those receiving cholera vaccination develop high agglutination titers against brucella antigens. The duration of this phenomenon is unknown, nor whether it may reappear as an anamnestic reaction.

In our opinion it becomes apparent from the above discussion that the diagnosis and differential diagnosis of brucellosis must depend upon:

1. Evaluation of epidemiological data when available.
2. A critical analysis of clinical signs and symptoms.
3. Laboratory procedures considered in relationship to each other and to the clinical picture, preferably universally standardized, technically dependable, competently done, differentially eliminative, and comprehensive in scope. A great deal of this is in the future and, for our peace of mind, is not necessary in many cases.

Prognosis.—The death rate has rarely exceeded 2 per cent. It has been higher in a few epidemics, but sporadic endemic cases probably are lower than this figure. The prognosis must always be guarded in the malignant types. Low agglutination titers in critically ill patients, as well as a severe neutropenia with a falling white count are grave prognostic omens.

Treatment.—The most important step in the prevention of brucellosis is the pasteurization of all milk products. San Francisco County (fig. one) has done this for years and its remarkably low rate in contrast with Los Angeles, one might think would influence the latter city and county to mend its ways, especially inasmuch as tuberculosis and Q fever, as well as other diseases are spread through raw milk. Unfortunately to date, they have not seen the light. It is customary to remove all positive reactors from certified dairy herds as soon as they are determined, but the milk is drunk unpasteurized before and after this occurs.

The next step in prophylaxis is to get rid of all infected animals. Such a concept at present appears utopian in this country. In fact sheep are believed to have become infected only since 1930 in this country. However, dairy herds are being improved in ever increasing numbers, and in North Carolina the rate of infection has been reduced to less than one per cent. Swine are heavily infected in the Midwest and the goats along the border in the Southwest and in Mexico, in which sections the disease has been known under different names for years.

Vaccine Therapy.—There is great difference of opinion among members of the profession as to the kind of antigenic material and type of reaction from it that are desirable in treating brucellosis, as well as to the type of case suitable for treatment, or whether such therapy has any place at all in our armamentarium. Certainly it is the consensus that acute brucellosis should not be so treated, nor skin tested. It appears best reserved for treatment of chronic cases. A preliminary skin test with 1:10,000 brucellin, giving 0.1 c.c., or enough to produce a visible wheal intradermally, is a safe initial test. *Patients without agglutinins in their blood do not respond to vaccine therapy, nor will such therapy produce agglutinins in their sera as a rule.* Huddleson's brucellin in strength indicated by the sensitivity test is preferred by most. It should not be used in such amounts or strength as to produce systemic or severe local reactions. Intervals should not be less than four nor more than nine days between injections. While Huddleson and others have used vaccine or other antigenic material intravenously to produce shock therapy, there would seem little need for this radical procedure today. It is not free from danger. As we observe it in civil practice, probably most of the cases receiving vaccine today do not have clinical brucellosis in any form.

Supportive therapy is that of any continuous fever and is symptomatic in nature.

Active Therapy.—When no contraindication exists, and when the patient has never been treated previously with any of the sulfonamide drugs, treatment with sulfonamides has never failed to effect a cure in our clinic. Conversely, when patients have been given sulfonamide drugs at some time before we have seen them, without having been cured, in no single instance have we ever subsequently cured a case with these drugs.

The secret lies in maintaining accurately titrated high blood levels of sulfadiazine or sulfanilamide constantly present for a period of two weeks. This is a hospital procedure: the patient must be carefully watched and all necessary laboratory safeguards applied. The level is usually maintained at 15 mg. per cent or higher, and in those patients not making progress after several days of continued observation, fluids are carefully restricted for a day or two to increase the sulfa-levels in the blood. The kidneys must be carefully watched and so must the blood for signs of developing anemia or leukopenia. Transfusions are frequently in order. Keep the Ph of the urine at 7.5. We have cases remaining cured by this method for every year from 1939 to date. The reason these drugs fell into disrepute in the treatment of this disease was because doses were inadequate, blood levels were not ascertained and controlled, the patients were not hospitalized, and the treatment was not continued long enough. If you are not successful in the first attempt, or if treatment has to be interdicted, it is useless ever to try it again.

In the combined treatment with sulfadiazine and streptomycin, we limit it to those patients who have been unsuccessfully handled with inadequate sulfonamide therapy. We prefer to use equal parts of sulfadiazine and sulfamerazine, though we have used sulfadiazine alone, and maintain the sulfa blood level around 15 mg. per cent. One-half gram of streptomycin is given intramuscularly every six hours, ostensibly for two weeks, but at any complaint of tingling of the hands or feet or of dizziness or vertigo, one or two doses are withheld and the dose changed to one-fourth gram every six hours for the balance of the two weeks. Results have

been good, and so far there has not been a relapse.

We have treated 10 cases with aureomycin, duomycin brand, with a total dosage of 50 mg. per kg. of the patient's body weight in each 24 hours, giving one dose every four hours for the first two days and every six hours thereafter until the end of the fourteenth day. There have been two relapses. One was again treated by the same method and is still free from symptoms so far. The other is undergoing treatment with streptomycin and sulfonamides at present. Aureomycin is not effective against the brucella organism in vitro, yet seems to work well clinically. It has the advantage of being efficacious when given by mouth, and of low toxicity. Occasionally it causes nausea and vomiting, but this can be stopped by preceding each dose for a time with five or 10 grains of chloretone, and giving smaller doses more often to make the same 24 hour quantity. We intend to try combining this drug with sulfadiazine.

Artificial fever therapy in the hyperthemia cabinet, and based upon the thermal death point of brucellae, maintaining the body temperature of the patient at 106 F. for five to six hours, and repeated three or four times, has given good results. Only those with good cardiac reserve should submit to it, and it is questionable whether any patient over 35 years of age should take it. We saw one apparently husky truck driver of 36 succumb quickly to pulmonary edema after the third hour of treatment. Most brucella organisms are inhibited or die after a few hours of temperature over 105 F.

In chronic brucellosis of low grade types, we have lately been using Aralen (Winthrop). It comes in 250 mg. tablets and the dosage is two tablets twice daily for four days, followed by 2 tablets every four days for six weeks. The end result of such treatment is still to be determined, but temporarily, during the six months we have used it, patients have been very pleased with apparent improvement and the euphoria shown.

SUMMARY

1. At times the disease is one of the most difficult of all infectious diseases to diagnose.

2. It exists in acute, subacute, chronic, subclinical, and latent forms.

3. The diagnosis rests with the laboratory to a degree that is uncommon with most diseases.

4. Active proven disease exists in which none of the usual laboratory tests is of assistance in diagnosis, other than positive culture.

5. It is amenable to sulfonamide therapy with high blood levels, provided it has not been previously unsuccessfully treated with inadequate levels or else for too short a time.

6. It may also be treated successfully in its severer forms with a combination of sulfadiazine or other sulfonamides and streptomycin; it also responds to treatment with aureomycin.

7. The low-grade form appears to respond to aralen.

8. Vaccine therapy should only be employed as a last resort in definitely proven chronic cases.

9. The skin test cannot be accepted as an index of active disease.

10. Agglutination tests may be inhibited through the presence of blocking substances present. This is capable of being overcome.

11. The one sure diagnostic test is a positive culture obtained from the patient. This is not easily obtainable in most instances.

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BRUCELLA INFECTION OF BONES AND JOINTS

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BRUCELLOSIS is a general infection caused by one of the sub-species of Brucella melitensis. The natural habitat of these organisms is in the domestic animals. This disease is characterized in the cow by repeated abortions, followed often by a carrier state through chronic infection of the udder, and excretion of the bacteria in the milk.

For man the principle contact sources are cattle, goats, sheep, and swine. Undulant fever in man and the epidemic infectious abortions in animals were unrelated until Evans, in 1918, called our attention to the relationship existing between the organisms causing the two diseases. The causative organism was discovered in 1895 by Bang, and Von Stribolt. MacNealy and Heri isolated the specific organisms from cattle in 1910. The first of undulant fever reported in man was by Craig in 1905. The diagnosis and treatment of this condition has, in the past, been indefinite and debatable. The condition has often been overlooked because of longstanding symptoms of aching, fatigue, and depression. Many patients have been branded as neurasthenics, because of the indefinite symptomatology. The diagnosis and treatment of the disease is chiefly the concern of the internist and the general practitioner. However, a review of the literature will show that brucellosis demands the attention of the orthopedist almost as often as it does any other medical specialty.

An early symptom of special interest in this disease is low back pain. The orthopedist should always be on the look-out for this disease in his "hard to account for symptoms patient." The symptoms which usually bring the patient

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to the doctor are caused by the chronic stage of the disease. The term "Chronic Undulant Fever" is rather misleading, particularly the word "fever", as in the chronic state, there is often very little elevation of the temperature. More confusion results from the various manifestations of the disease that make it resemble both tuberculosis and syphilis. Typhoid, para-typhoid, rheumatic fever, influenza and some other diseases, must also receive careful consideration in the differential diagnosis. Brucellosis attacks the vertebrae more often than any other bones in the body. The most common location, in the vertebrae, is in the lumbar spine. It is most often dry, although abscess formations have occurred which have necessitated incision and drainage.

Hardy reports 375 cases occurring in Iowa in which 32 per cent involved the joints. Simpson reports 175 cases in Ohio, 32 per cent involving joints. Steindler refers to polyarthritic dissemination of the serous type and states that joint manifestations in undulant fever occur eight to twelve weeks after the acute onset of the disease, which helps to differentiate this disease from progenic arthritis or osteomyelitis. This joint is illustrated by the case which I will present. Many cases of myotendonitis will be found after careful study by the internist and orthopedist to be caused by brucellosis. In these cases there is usually a very confusing history with symptoms of generalized weakness, headaches,

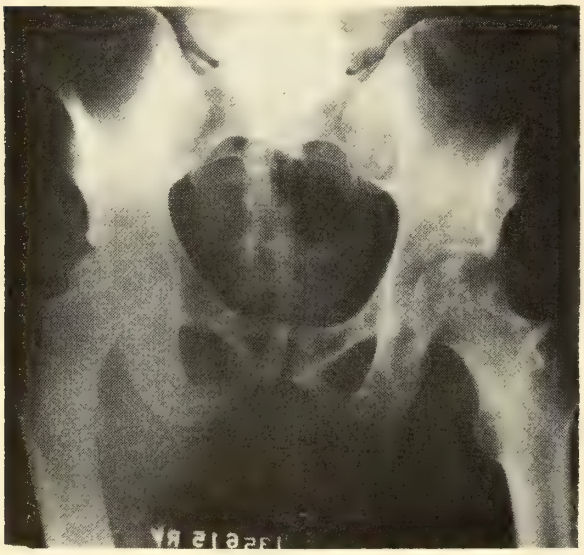


Fig. I

X-ray appearance of left hip joint area approximately three months after injury, showing septic necrosis of hip joint in anteroposterior view.

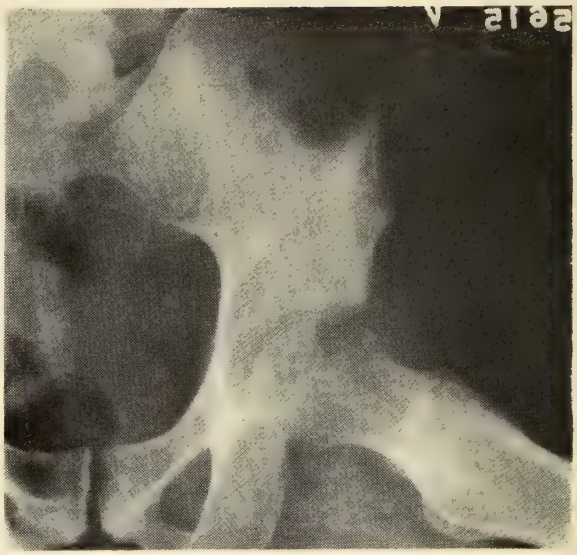


Fig. II

X-ray appearance of left hip joint area approximately three months after injury, showing septic necrosis of hip joint in lateral view.

eye aches, pain, tightness in the neck, and inability to concentrate. These indefinite symptoms cause many to be called neurasthenic and some of them have been to many doctors. The location of this myotendonitis is usually in the hips, glutei muscles or shoulders where it appears as a subacromial bursitis, either chronic or acute.

Much more work needs to be done before brucellosis can be properly evaluated. We must have more standardized laboratory procedures, more clinical observation, and more study of its treatment. It is estimated that 30,000 to 40,000 new victims are added each year to the thousands already suffering from undulant fever in this country. Various treatments have been used such as the vaccine, supportive treatment, the sulfonamides, streptomycin, and penicillin, and some years ago intravenous antiseptics such as metaphen and mercurochrome were widely used.

It was recently stated that a streptomycin-sulfadiazine combination effected a cure in nine cases. This was reported in The Arizona Republic in the article, "Your Health and Mine." This has not been confirmed by other authoritative medical information.

I will now present a case of undulant fever involving the hip joint. I have found seven similar cases reported. O'Donoghue reports a case of septic arthritis of the right hip joint in a girl

12 years of age in which an operation was done because of the probable bulging of the joint capsule. The pus obtained contained brucella melitensis. The end result in this case was ankylosis of the hip.

REPORT OF CASE

G. R., aged 37, was admitted to the hospital October 23, 1941. He had wrenched the left hip while moving heavy machinery on October 15, 1941. He hobbled along on this leg for two days until the pain became unbearable, then he spent a week in bed at home. During this time he lost twenty pounds of weight. Following his stay at home he sought medical attention and was admitted to the hospital. An x-ray was taken on admission to the hospital, which revealed a flexion deformity of the left hip and two minute chips from the left acetabulum. The leukocyte count was 14,000 per cubic milimeter. Traction was applied to the leg and sedatives were given, which gave very little relief. His temperature ranged from 98.6 to 99.6. He was dismissed six days after the admission.

He was readmitted to the hospital on February 4, 1942, approximately three months after his injury, because his pain, discomfort and disability was gradually increasing. The agglutination reactions on the blood at that time were negative with the exception of that for brucella abortus. These agglutination tests were positive in all dilutions. The purified protein derivative, strength No. 1, was negative; and strength No. 2 was very mildly positive. X-ray of his chest taken at this time was normal and an x-ray on his left hip, taken also at this time, revealed what the roentgenologist reported as septic arthritis of the left hip of brucella origin, (Fig. 1) showing the anteroposterior view of the left hip area and (Fig. 2) showing the lateral view of the left hip area.

This patient continued to improve and roentgenogram (Fig. 3) of the left hip in the anteroposterior view approximatetly one year later shows complete healing of the infectious process with no residual disability. However, the agglutination reactions for brucella abortus were still positive when patient was dismissed from the hospital.

On April 7, 1945, a recheck of this patient's blood still showed positive agglutination of undulant fever but there was absence of clinical or roentgenological evidence of the disease.

SUMMARY

It has been the purpose of this brief paper to present a case of brucellosis involving the hip joint and to discuss, briefly, the occurrence, diagnosis, and the treatment of brucellosis infection of the bones and joints.

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X-ray Report

Films taken January 17, 1942, of left femur in anteroposterior and lateral views, show definite changes in the bone structure of the head of femur. On these films there is a localized area of bone absorption or destruction in the head of the femur, which subsequent investigation demonstrated to be due to abortus infection. Re-study of the films at this time would suggest that the lesion is quite characteristic of undulant infection.

X-Ray Report

Films taken January 30, 1943. The examination of this patient's stereoroentgenogram shows both hip joints so that they might be compared. At present time there is very little difference between the appearance in the bone structure in these two hip joints. Apparently repair has reached a complete and stationary stage.

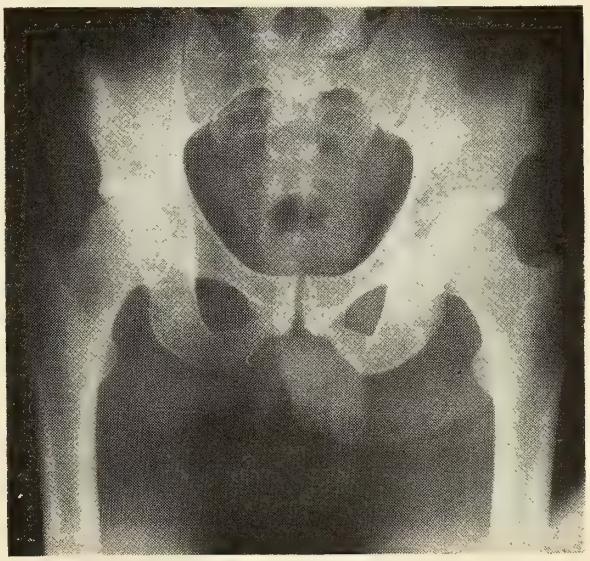


Fig. III

Anteroposterior view of hip approximately one year later, showing complete healing with no disability.

THE EARLY DIAGNOSIS AND TREATMENT OF PERTUSSIS

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WHOOPING cough has become the most feared disease of infancy. Any improvement in either early diagnosis or treatment would be welcomed by both the parent and the doctor. If the experience with a virulent strain of pertussis during an epidemic in a small town can be confirmed, it would appear that we are approaching both goals.

The virulence of the strain may be judged by the fact that many youngsters previously immunized in a routine accepted manner from one to ten years previously developed the disease. In fact, the first two cases recognized were in children ten and eleven years old, respectively, and whooping cough was not suspected in them until the differential blood smear revealed the high percentage of lymphocytes. Three babies died suddenly in the local hospital undiagnosed, but a postmortem blood smear on the third revealed a leucocyte count over 50,000 with 95% lymphocytes. Subsequent events left little doubt in the author's mind that the two previous deaths, likewise, were due to pertussis.

For many years authors have agreed that there is a leucocytosis and a relative lymphocytosis during the course of pertussis. Only one publication, and that in the foreign literature, could be found indicating that this lymphocytic shift occurred early and could be used for diagnosis. Garfinkel[1] stated that the blood count was as reliable as the cough plate method. Bacteriological facilities were not available here, but our experience with the present epidemic indicates that the number of lymphocytes increases with the onset of symptoms and this increase is quite definite long before coughing begins. Daily blood and differential counts show an unproportioned rise in lymphocytes.

This observation is illustrated by the case of a six-weeks-old girl who was first seen on March 30, 1948 with a history of restlessness, vomiting, and a low grade fever for 24 hours. There were no physical findings to account for the illness. The leucocyte count was 8,700, of which 60% were lymphocytes, 16% polys, 10% stabs, 4% juveniles, 4% basophiles, and 6% monocytes. A small dose of aspirin compound was administered every four hours. The following day the clinical condition was worse with more fever and persistent vomiting. The white count was 14,550 with 68% lymphocytes, 8% polys, 8% stabs, 6% monocytes, 5% eosinophiles, and 5% juveniles. Although one might suspect that hemoconcentration contributed to the elevated white count, almost all of the increase was due to lymphocytes. A similar rapid rise in lymphocytes was also demonstrated in other cases where daily or frequent blood counts could be obtained.

Garfinkel stated that a lymphocyte count higher than 55% was indicative of whooping cough since this was the maximum seen in a normal infant 10 days old. He found that the number of lymphocytes gradually decreased until at the age of four years the normal value was approximately 40%. Although our own control cases are few, several youngsters who had a cough, which was thought to be due to bronchitis, were checked and in none of them was the number of lymphocytes over 55%. On the other hand, 33 cases of pertussis were studied during the epidemic, and the lymphocytosis ranged from 57% to 94%. The lowest value was seen in a five-year-old child. This patient whooped, leaving no doubt of the diagnosis. The highest value (94%) was in a ten-months-old baby who was first seen in the fourth week of the disease. For the 33 cases in this series, the average was 73.8% lymphocytes.

Early in the course of the epidemic Rabbit Anti-Pertussis Serum (Wyeth) became available.* Twenty-three patients received one or two injections of 20,000 anti-endotoxin units. The results can best be observed by separating the cases into two groups, the first of which includes twelve patients who had not been immunized against pertussis.

The twelve patients who had not been immunized included four over one year of age, one ten months old, and seven under six months of age. It is in this last group that babies are so susceptible to pertussis.

Serving as controls for the treated group are four patients seen early in the epidemic who re-

* The serum was furnished by Wyeth Inc., through the courtesy of E. F. Bauer, E. V. Scott, and Dr. E. F. Roberts.

ceived only symptomatic treatment. Three of the four died, giving a mortality of 75%. The one who recovered was ten months old and was not seen until the fourth week of the disease. However, the infant lost considerable weight and the cough persisted for many weeks. Of the three patients who died, in only one was whooping cough diagnosed before death, as pointed out above.

There was only one death in the twelve cases receiving anti-serum. To be comparable to the control group, however, only eight of these were under one year of age, a mortality of 12.5%. The patient who died was a baby one month old who was not seen until the eighth day of the disease, and had a leucocyte count of 78,400 at that time. Administration of two doses of 20,000 units of anti-endotoxic units 48 hours apart did not alter the course of the disease, and he died on the seventeenth day of illness.

The impression is gained from this small series that the anti-serum is highly efficacious if given during the prodromal stage of the disease. During the course of the epidemic, babies presenting the symptoms of unexplained fever and vomiting were checked daily or on alternate days with a leucocyte and differential count. If no apparent infection could be found, and if the leucocyte count was increasing with a disproportionate number of lymphocytes, the child was suspected of having pertussis. After two or three days of palliative treatment, the youngster was given 2 c.c. of anti-pertussis serum in the gluteal muscles. Within 36 hours marked clinical improvement appeared. Vomiting ceased usually within 24 hours, and the fever was either entirely gone or receding by the following day. The diagnosis might be questioned in some of the cases, but the majority of the babies had been exposed to pertussis by older children in the family.

There were no deaths among the ten patients over one year of age who had not been immunized. Four of these received anti-pertussis serum, and had prompt amelioration of symptoms similar to the infants. It is impossible, however, in these older youngsters to be sure of the efficacy of the serum on mortality. The same is true in the eleven patients who had been immunized and received serum. It is known that previous immunization may not protect the child from the disease, but the severity is modified. However, the clinical impression was obtained that the serum was effective in eliminating the symptoms within 36 hours in the majority of these cases. Patients not receiving the serum continued to cough several weeks, while in only one of the twenty-three receiving anti-pertussis serum was there any lingering cough which is so characteristic of pertussis. This three-months-old infant did not receive the serum until the coughing stage had been reached.

Certainly in the present epidemic of whooping cough, an early rise in the leucocyte count with a disproportionate increase in lymphocytes was present without exception. Further research is necessary to see if this confirmation of Garfinkel's work is the usual course of events, or if it is peculiar to certain strains of pertussis. The impression has been gained that if diagnosis can be made early in the disease, anti-pertussis serum may have a definite role in therapy. Further research is needed to test the universal application of this preparation, but there is no doubt about its efficacy during the epidemic herein reported.

SUMMARY

Blood smears in thirty-three cases of pertussis revealed that there was an early leucocytosis, and a disproportionate rise in lymphocytes. This lymphocytosis was useful in diagnosing pertussis long before other characteristic signs appeared. Twenty-three patients received anti-pertussis serum (Wyeth). The impression was gained that prompt clinical improvement was obtained if the serum was given early in the course of the disease.

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1. Garfinkel, Max: The Value of the Differential Count in the Early Diagnosis of Whooping Cough. South African Medical Journal. Nov. 22, 1941, pg. 451.

PALLIATIVE THERAPY OF BENIGN HYPERTENSION WITH CALCIUM BROMINE GALACTOGLUCONATE*— PRELIMINARY CLINICAL NOTE

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HYPERTENSION from all the statistics available is said to be the most common cause of death in the United States. Stieglitz[1] stated that hypertension is one of the greatest factors in causing disability in those between the ages of 25 and 64 year. Much research has been and is being done in an effort to determine the etiology of hypertension, but no one single factor appears decisive. No effort will be made in this brief report to discuss or to review the numerous contributions made, dealing with the mechanism of hypertension, because this has been adequately done by many competent observers.

Some comment might be made regarding the importance of the emotional factor which evidently plays a vital role in essential hypertension. Page[2], speaking of the psychogenesis, states that mental disturbance might produce hypertension by acting as a primary cause or by acting as a trigger mechanism. Psychotherapy was suggested, and in many instances has proven of great value, either alone or as an adjunct of medical therapy.

Bromide salts have been employed for years as a sedative, but their use is frequently limited due to untoward effects which are well known. A drug which would allay the nervous manifestations would help symptomatically, in keeping blood pressure within normal limits.

Calcibronat, calcium-bromine galactogluconate, has all of the advantages of the usual bromide salts with few, if any of their toxic properties, and the presence of the calcium ion enhances the therapeutic properties of this preparation. Calcibronat has the formula of $(C_{12}\ H_{21}\ O_{12})_2\ Ca\ Ca\ Br_{26}\ H_2O$, it is readily soluble in water, palatable, has a calcium ion content of 7.54 per cent, and a bromine ion content of 15.5 per cent. Calcium has an antispasmodic[3] and a vasodilating effect[4]. The bromine ion acts on all portions of the nervous system, but the higher centers seem to be influenced to a greater extent. The motor area of cerebral cortex shows lessened irritability in the response to stimuli under the influence of bromine.

In view of the multiple therapeutic measures recently advanced including Etamon, Priscol, Dibenamine and other cholinergic drugs as well as surgical procedures, including nerve block and denervation, etc., it occurred to me to analyze results of an innocuous simple office procedure which I have employed for many years in the symptomatic treatment of benign hypertension.

Tandowsky[5] reported favorably his observations with Calcibronat (Calcium-bromine galactogluconate) in 32 patients as a palliative measure in the treatment of essential hypertension. May[6] published his experience with Calcibronat in nine cases.

Procedure Employed: The systolic and diastolic blood pressures were recorded on all patients every week for a period of three or four weeks, in the prone and upright position, before Calcibronat therapy was instituted. The patients were first selected on the basis of presence of benign hypertension only and were first put on ordinary sedation including the use of oral Calcibronat which was found palatable in doses of one tablespoon twice daily, rest and psychotherapy, the latter when indicated. In many cases, this regime was sufficient to bring both the systolic and dastolic pressure below the danger levels. A control group of 25 cases was placed on the same regime excluding the use of Calcibronat, but the results were not nearly as significant as those patients who were on Calcibronat therapy. In cases of persistent hypertension, an intravenous injection of 10 c.c. Calcibronat was given slowly early in the morning when practical. After the flushing would subside, the blood pressure almost invariably showed an immediate drop of 10 to 50 points. Even a single injection would cause this drop to persist for several hours. If the blood pressure rose again markedly late in the afternoon, a second injection was given. By the end of 10 days to two weeks, intravenous injections were reduced to alternating days, and then twice

*Known as Calcibronat, and furnished by Sandoz Pharmaceuticals, Division of Sandoz Chemical Works, Inc.

weekly. At the end of a month, a weekly intravenous injection was given which in some cases was continued over months and years without any evidence of bromism or other toxic manifestations. This report includes 25 cases with 15 excellent results; 6 good, and 4 failures. By excellent, is meant maintenance of levels of no more than 160/100; good 190/100; and failures those cases in which the hypertension was either not altered or those in which the original level returned in spite of therapy. Those patients with excellent results also had a complete disappearance of clinical syndrome.

CASE HISTORIES

Case 1. White male, aged 60 years, who had intermittent claudication and frontal headaches. The blood pressure was 260/160; the only abnormal findings were pyorrhea and mild arteriosclerosis. He was given dental care and sedation such as triple bromides and the blood pressure leveled off at 200/120. Calcibronat was given orally and intravenously, and the blood pressure was eventually reduced to 140/80. He received weekly injections of Calcibronat for one year without toxic effects. He was able to walk six blocks without pain. Excellent results were obtained.

Case 2. White male, aged 45 years, who was an executive in a large Eastern firm. He had been advised to have either sympathectomy or to go to Arizona. The blood pressure was 280/140. He was an alcoholic and very depressed mentally. While taking triple bromides and thiocyanates, the blood pressure reduced to 220/130. He was placed on parenteral and oral Calcibronat therapy and within two weeks the blood pressure came down to 130/80. Has refused further medication, and for at least two months the blood pressure was normal. This can be considered as an excellent result.

Case 3. White male, aged 55 years, who had pulmonary emphysema, hypertension, and obesity. He had retired from a law practice. The blood pressure was well over 200 systolic when first seen, with the diastolic over 100 which persisted during treatment with the usual sedation. During two years' observation while being given oral and parenteral Calcibronat therapy, the blood pressure fluctuated around 130/80, but would become elevated during severe emotional crises to 220/110. Good result.

Case 4. White female, aged 70 years, whose blood pressure was 260/140. There were no findings to substantiate a diagnosis of malignant hypertension. While on Calcibronat oral therapy, the blood pressure came down to 160/110 but the patient refused to cooperate further. Signs of bromism developed. She was given intravenous injections of Calcibronat for two weeks with little change in the blood pressure. The blood pressure returned to the original levels. Poor result.

CONCLUSIONS

1. Calcium-bromine galactogluconate is an effective agent in the symptomatic treatment of benign hypertension, either alone or as adjunct to other therapy.

2. It appears to be more effective and less toxic than the usual bromides or barbiturates.

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EFFECTIVENESS OF TREATMENT OF ALLERGIC DERMATOSES

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DISCUSSION of this subject before a group such as this one seems to presuppose illustrious success in the treatment of these disorders. I am allotted ten minutes and if I stick strictly to these "illustrious successes" in my own practice, I have been allotted far too much time. I have the impression I am not alone in the difficulties caring for these patients but I might be alone in publicly admitting it so frankly. There are probably very few here who would care to boast of their lack of failures.

The very difficulty of the problem makes it all the more imperative for us to discuss it frankly, to admit the inadequacy of our current treatment and to try to improve our procedures. I shall not make this a review of literature; by and large, we all read the same literature. I shall, however, lean heavily on a very delightful

Read before the Southwest Allergy Forum, April, 1949, El Paso, Texas.
*Thomas-Davis Clinic.

and enlightening article by Rostenberg of Chicago.

Allergic dermatoses can include: eczematous reactions of the contact type, atopic or flexural eczemas, urticaria, drug eruptions, dermatophytids, and others.

Our study today should first be more concerned with the atopic type of sensitivity. I shall use Dr. Rostenberg's definition—"Atopy is the genetic predisposition toward the development of certain allergic states, characterized by the immediate wheal type of reaction and mediated by a particular antibody known as the Prausnitz-Kustner antibody." Very frequently this condition begins with the familiar picture of infantile eczema, which persists with varying degrees of intensity until the child is about two years of age. At that time there is often amelioration, sometimes complete and without any reeurrence—but not always. The eruption continues, or it may recur intermittently later in life, as a drier, more lichenified lesion. Simultaneously with the exacerbation of skin lesions, there may occur other atopic illnesses—asthma and/or hay fever.

In the infantile type of eczema there often can be found offending allergens in the form of contactants, inhalants or foods—any one or all may be operative in any case. Occasionally, the parents can correctly identify the offender, such as exacerbation caused by a certain food or garment. Unfortunately, it is usually not so easy and it will tax the ingenuity of the best of us to determine and eliminate the cause. Skin tests may be of value and certainly are worthy of trial. Passive transfer tests are often more enlightening and accurate than direct skin tests; positive reactions obtained by this method are usually more dependable and reliable than the direct.

Our responsibility does not end with the finding of one or many positive skin reactions. As in all other allergic management, we must follow the patient to know if these positive reactions represent the actual offender, a routine too familiar to all of you to go into.

The topical treatment of these infants requires continuous and diligent care. The dermatologist is far better trained in its use than the allergist, and much more capable of using it than we are. The prevention of scratching by loose-fitting garments, curtailing the use of the hands by card-board immobilization of the elbows and, rarely, active restriction of the hands is a fundamental part of the management.

Soothing wet dressings prove valuable when the lesions are exudative; pastes and ointments when they are drier.

Cleansing is best accomplished by the use of simple vegetable or mineral oils. Soaps are interdicted. Soapless detergents may be tried. They must be tried cautiously, however, since they may be sensitizers, and are too drying if the cleansing process lasts too long.

The infant frequently overcomes the condition at the age of about two years. If there is a recurrence, the condition is likely to be drier, with lichenification. The patient is now treated the same as an adult. Again we make every effort to identify the offending allergens. Foods are a particular suspect and every effort is made to locate the offenders. Skin tests, trial diets, Rowe's elimination diets and food diaries may be necessary before one is able to identify the offender. Ingested drugs must always be kept in mind as a possible factor in the etiology of this condition.

Here we often encounter the case in which we eliminate all the identifiable allergens, use adequate hyposensitization to those factors which cannot be eliminated but the "malady lingers on." Of course, it can be said all the offending material has not been identified and this is probably the explanation, but many patients do apparently fail to respond to what we believe is good allergic management, and it is this fact that makes us feel discouraged about allergic treatment of this condition. I quote Rostenberg again—"individuals with this disorder in a high percentage of cases (50-60) give multiple immediate wheal reactions. Occasionally, but apparently quite rarely, individuals with this disorder improve on elimination of or desensitization to the substances which yield immediate wheal reactions."

This point is, of course, crucial. He says, referring to Sulzberger, "despite the fact that he (Sulzberger) champions the atopic position of this dermatitis, he states that in general he has not been able to verify the patient's statement with regard to the actual role played by suspected factors. He has never seen and knows of no successful production of the dermatitis by exposure to these same substances during dermatitis free periods." He goes on to state, "it has been impossible regularly to effect a cure by the

removal of suspected substances." Cooke, in a study of hospital cases, found that the feeding of foods to which the patients were skin reactive never had the slightest influence on the atopic dermatitis itself. The patients who were fed the foods to which they were wheal reactive might develop asthma, urticaria, or gastro-intestinal upsets, but never the dermatitis. It would appear then that the substances to which these patients give immediate wheal reactions are not of etiologic import for the skin eruption.

The experiences of the foregoing authors are in accord with my personal experiences in the case of atopic dermatosis. By far the majority of my patients have shown multiple whealing responses to cutaneous and intracutaneous testing, but I can recall not a single one whom I was able to relieve by the application of allergic management based on the results of these skin tests. Benefit is sometimes derived from this type of management, but this benefit is not adequate to control the disease of the skin satisfactorily.

During the active course of the disease flare-ups may be induced by exposure to the antigen, and improvement may be accomplished by the elimination of the antigen, but not relief, satisfactory to the patient or to me. Because of this fact and of the experience of others cited above, I take a very pessimistic view of the effectiveness of the allergic management of atopic dermatoses. Judicious use of topical medications and x-ray therapy is required to effect adequate relief, and all too often the application of all three methods leaves much to be desired.

It is certainly questionable whether the eczematous lesions of contact dermatitis represent the same immunological factors operative in the so-called atopic dermatitis. The clinical course, the appearance, the sites of predilection are different. There is a high incidence of familial and personal history of atopic dermatitis but this is usually not true of the conditions in the patients with eczematous contact type.

The contact type merits more mention. Patch tests are often positive and give information that is useful in the care of these patients. When we are able to identify the offending agent by history and patch tests, removal of this material from the environment of the patient usually brings about a marked improvement in the lesion, and re-exposure frequently will cause an exacerbation of the condition.

After finding the offending substance, the treatment of this condition requires avoidance of this material and appropriate topical treatment. Little is accomplished by treatment by immunological methods.

Before leaving the subject of contact dermatitis and atopic dermatitis, a word should be said about anti-histaminic drugs. When these drugs were released on the market, much was anticipated with regard to the treatment of these two conditions. It did not take long, however, to learn of the disappointment that was in store. The drugs seemed to influence very little the course of the disease. They were said to alleviate the itching considerably; even this hope was not founded. There may be some alleviation of the pruritus but it is not adequate. Some of them have a very considerable sedative action and through this action they do their greatest good. The sedative action plus whatever anti-pruritic effect they may have, and plus the fact that they are less likely to be allergenic than some other sedative, often make them the sedative of choice, especially in children.

Under the subject of allergic dermatoses we must include urticaria, acute and chronic. The readiness with which the acute types disappear spontaneously makes them a much simpler problem than the chronic type. Very often the cause and effect of the offending agent is so obvious that no concerted search is necessary. It is in urticaria that the anti-histaminic drugs have their greatest usefulness. They usually will greatly shorten the course of the acute type, and make it very much more easily tolerated by the patient. Often they will hold the chronic type under control, but it is well known that they are not curative.

In chronic urticaria we should strive to find the allergen that is responsible, assuming there is one. And we must assume there is one until we have exhausted every means of finding it. It is well known that the skin tests which react by whealing, notwithstanding the fact that the lesion of urticaria is the wheal, rarely lead to the discovery of the offending allergen in this disease. Too frequently the reactions are not positive, or even when they are, are not significant in the etiology of the urticaria. We must go on in search of focal infections, ingestion of drugs, and most certainly for some psychogenic cause for the condition.

This discussion should not be closed without

a brief mention of drug reactions. They are too many to enumerate, but the one that occupies us mostly of recent years is the reaction to penicillin and other antibiotics. They, like other drugs, can manifest themselves in a variety of conditions, but those which interest us most as allergists are the urticarial reaction and the more severe serum sickness type of reaction with its many and varied symptoms and manifestations.

The treatment for this kind of reaction, I believe, is first and foremost the use of antihistaminic drugs. They do not always control the condition but do represent the best single agent at our disposal. When these drugs do not control the reaction, we fall back on the numerous other methods of treatment that have been used with good results often, viz: nicotinic acid, Vitamin K, intravenous alcohol, intravenous procaine (which I think is distinctly dangerous) and the others with which you are familiar.

Finally, in summary, I am sure I have added nothing new to our ideas of the efficacy of the treatment of allergic dermatoses. From the standpoint of allergic treatment I am frankly discouraged and pessimistic, and feel that our best approach is concerted effort by the allergist and dermatologist with the emphasis placed on the dermatologist.

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Editorials

"We Guarantee——"

The medical profession is invested with the duty and privilege of furnishing adequate physician service to every member of the public at a price that the individual can afford to pay.

The expression "adequate physician service" is employed here instead of "adequate medical care" because the latter involves in addition to the services of physicians, nursing service, hospitalization, medication (drugs), proper housing (including modern sanitation) suitable clothing, and adequate nourishment. Supplying and distributing these goods and services is, obviously, the obligation, not only of the doctors, but of all persons employed in these fields of endeavor, and indirectly, of all public-spirited citizens.

Few if any doctors will disagree with the precept stated above, and therefore, all or nearly all will be interested in programs which have been placed in operation in several parts of the country by recognized medical organizations, programs which are designed to provide the type of service to which the public is entitled.

The Colorado Plan (the rules of which are printed elsewhere in this number of Arizona Medicine) provides a method by which the public may obtain satisfaction in its dealings with members of the medical profession when such satisfaction has not been readily forthcoming.

The Alameda (California) County Plan is more ambitious, and aims to accomplish the following things: Furnish emergency physician service at all hours; enable the patient to budget his income and amortize his debts for physician services; help to prevent and settle malpractice claims; help the doctor collect his bills; and, in general, improve public relations.

In the final analysis both plans aim to assure the public of adequate and proper physician service at a reasonable cost to the patient. The Alameda Plan, it seems, is better in that it attempts to insure these aims in advance and avoid unpleasant relations between the public and the medical profession, whereas the Colorado Plan merely attempts to straighten out unhappy situations after they have been created. Both plans offer the public something it has not always had—good physician service; and both plans offer the medical profession something it has not always had—good public relations.

Other plans have appeared; still others will appear. One may read about the Colorado Plan in this journal, and about the Alameda Plan in the December, 1949, issue of the Woman's Home Companion. Every member of organized medicine should consider this matter thoroughly and be prepared to cooperate to help improve the standard of physician service in Arizona.

Some day then, the medical organizations of this state may be able to state freely in public announcements:

"WE GUARANTEE TO DELIVER TO EVERYONE THE PHYSICIAN SERVICE HE NEEDS WHEN HE NEEDS IT, AT A PRICE HE CAN AFFORD TO PAY."

Annual Dues - American Medical Association

To the Secretaries of the Constituent State and Territorial Medical Associations:—

The House of Delegates of the American Medical Association at its meeting in Washington, D. C., December 6 to 8, 1949, adopted amendments to the By-Laws of the American Medical Association whereby Division One, Chapter II, Tenure of Membership, has been changed to read as follows:

CHAPTER II

Tenure and Obligations of Membership; Dues

Section 1.—When the Secretary is officially informed that a member is not in good standing in his component society, he shall remove the name of said member from the membership roll. A member shall hold his membership through the constituent association in the jurisdiction of which he practices. Should he remove his practice to another jurisdiction, he shall apply for membership through the constituent association in the jurisdiction to which he has moved his practice. Unless he has transferred his membership within six months after such change of practice, the Secretary shall remove his name from the roster of members.

Sec. 2.—Annual dues, not to exceed $25.00, may be prescribed for the ensuing calendar year in an amount recommended by the Board of Trustees and approved by the House of Delegates. Each active member shall pay said annual dues to his constituent association for transmittal to the Secretary of the American Medical Association.

An active member who is delinquent in the payment of such dues for one year shall forfeit his active membership in the American Medical Association if he fails to pay the delinquent dues within thirty days after notice of his delinquency has been mailed by the Secretary of the American Medical Association to his last known address.

Any former member who has forfeited his membership because of being delinquent in payment of dues may be re-instated on payment of his indebtedness.

You will note that the following important changes have been made:

(A) The word "Dues" has been added to the title of Chapter II.

(B) Chapter II has been divided into two sections.

(C) The first sentence of Chapter II, which read, "Membership in this Association shall continue as long as a physician is a member of a component society of the constituent association through which he holds membership," has been deleted.

(D) The words "of the American Medical Association" have been added after the word "Secretary" where clarification is necessary.

(E) The sentence, "An active member shall pay dues or assessments as may be prescribed by the Constitution or By-Laws," has been deleted.

(F) The words "in the American Medical Association" have been added after the words "shall forfeit his active membership" in the second paragraph of Section 2.

(G) The sentence forming the third paragraph of Section 2, with regard to reinstatement, is a new addition to Chapter II.

(H) A new paragraph, forming the first paragraph of Section 2, providing for annual dues not to exceed $25.00 has been added to Chapter II.

THE HOUSE OF DELEGATES, ON RECOMMENDATION OF THE BOARD OF TRUSTEES, SET THE MEMBERSHIP DUES FOR THE YEAR 1950 AT $25.00.

The full effect of the new provisions will have to be studied and developed during the next year. However, the following interpretations of the amended By-Laws are offered for your guidance at this time:

(a) Active membership in the American Medical Association will continue to be limited to those members of constituent associations who (1) hold the degree of Doctor of Medicine or Bachelor of Medicine, and (2) are entitled to exercise the rights of active membership in their constituent associations as provided in Article 5 of the Constitution of the American Medical Association.

(b) A member of the American Medical Association shall lose his membership in the Association when the Secretary of the American Medical Association is officially informed that a member is not in good standing in his component society **or is delinquent in the payment of the American Medical Association dues established by the above change in the By-Laws.**

(c) Forfeiture of membership in the American Medical Association due to failure to pay dues will have no effect on membership in the component or constituent medical societies unless the component or constituent societies amend their respective constitutions and by-laws. It is, therefore, possible that a physician may be a member of his component and constituent societies and at the same time not be a member of the American Medical Association.

(d) The amended By-Laws provide for the collection of the American Medical Association membership dues by the constituent associations for transmittal to the Secretary of the American Medical Association. The detailed method to be adopted by each constituent association will vary in each state. In general, the method utilized by each state for the collection of its own component and constituent association dues should be followed.

Some of the problems involved in the collection and transmittal of dues will be considered in a later communication to you.

It is planned to provide each member of the American Medical Association a membership card and certificate of membership when his dues are paid.

It will be necessary for the Secretary of the American Medical Association to notify those members who are delinquent in the payment of

their dues, and this office will, therefore, require a complete list of all active dues paying members.

No changes have been made in the Constitution and By-Laws of the American Medical Association with respect to Fellowship. Eligibility for Fellowship and annual Fellowship dues of $12.00 remain the same. Under the present By-Laws a Fellow will pay for the year 1950 total membership and Fellowship dues of $37.00.

The following members may be exempted from the payment of the $25.00 American Medical Association membership dues: retired members; members who are physically disabled; interns, and those members for whom the payment of such dues would constitute a financial hardship.

No member should be exempted from the payment of his American Medical Association dues who is not exempted from his component and constituent society dues.

George F. Lull, M. D.

The Hermosillo Meeting

On December 2 and 3 for the second consecutive year the Medical Society of Hermosillo, Mexico, entertained the Maricopa County Medical Society. The Maricopa County Medical Society reciprocated last May and will return the invitation again this coming spring.

Hermosillo is a thriving Mexican city of 60,000 people with 40 doctors. It is one hundred and eighty miles south of the United States-Mexico boundary line at Nogales. There is a paved road the entire distance. The first sixty miles of the road south of Nogales winds through a low mountainous country which is unusually picturesque. There are numerous small cultivated areas consisting of citrus, corn, cotton, alfalfa and small grains. After this the road enters a strip of desert and is as straight as the eye can see, with only an occasional bend, and there are no speed limits. It is lined on both sides by an unusually dense desert vegetation. The last seventy miles is a continuous forest of organ-pipe cactus. Hermosillo itself is a very beautiful city at this time of the year with poinsettias and bougainvillea in bloom, as well as the many trees which are seen in a semi-tropical climate. Many of the buildings are of old Spanish architecture, but there are numerous new structures of the most modern design and not a few very beautiful large new homes. Being the Capital of the State of Sonora, the government buildings are particularly massive and impressive.

The Medical Society arranged surgical clinics on the forenoons of both days and a scientific meeting the first evening. Our Mexican neighbors excel in entertainment and hospitality. After the scientific meeting of the first evening, Dr. Ignacio Cadena, entertained the entire group at his spacious residence.

A barbecue picnic was held in one of the many parks on the afternoon of the second day and on the last night the entertainment was in the city casino.

The number of Maricopa physicians who availed themselves of this interesting and enjoyable trip was altogether too small.

It is an established fact now that the only international meeting that can be held any place in the world today, in which dissension does not prevail, is a medical meeting. This Maricopa County-Hermosillo meeting is an excellent way to demonstrate the good neighbor policy with our friends across the Rio Grande. So let us hope that if this invitation is repeated next year, a larger representation from Maricopa County will attend.

Mr. Ewing's Approach . . . "An Appeal to the Pocketbook"

There is ample evidence that a majority of physicians believe that status quo in medical practice is neither possible nor desirable. While they are unalterably opposed to compulsory health insurance, they have supported changes proposed by their leaders in an effort to make medical care more readily available to the people at a cost within their means. Some may not have been too enthusiastic about the proposals adopted, but at least they have done what was asked of them.

By far the greatest number of physicians have had little patience with combative die-hards who oppose any change. They resent deeply those within their ranks who stir up controversy by appeals to prejudice .They look with disfavor upon their colleagues who resort to questionable tactics in opposing a Government system of medical care. But their displeasure is equally visited upon public officials who resort to the same methods.

Oscar R. Ewing, Federal Security Administrator, although vocal on the subject, has on occasions revealed a sad lack of knowledge about

health matters. He has not been above frankly appealing to prejudice in an effort to gain support for the Administration's health insurance program. On occasion his Wall Street background comes to the fore. He is again the business man driving a bargain.

An example of the latter were statements made by him in an address before the National Association of Retail Druggists last September. As usual, he had nothing good to say for the American Medical Association. That was to be expected because he and the A.M.A. have been "feudin'" for some time now. What surprised your Observer was not Mr. Ewing's bid for NARD support of the Administration's health insurance scheme, but that his appeal was based on increased profits for druggists.

Listen to this!

". . . . the President's health program is not simply a series of isolated recommendations. It is a carefully formulated plan of operation for which all the constituent elements are essential if the plan is to click. National health insurance and the distribution of medical purchasing power is a very important element. It is the animating factor which gives life and vitality to the whole project.

"In all this I do not see how the retail druggist can fail to profit enormously. As to your own status under National health insurance, there is nothing which would in any way disturb your present method of doing business. You are, of course, aware that only the unusually expensive drugs and medicines—those not ordinarily handled over most drug counters—would be paid for out of the National insurance fund. For the rest, you would have exactly the same cash register relationship with your customers that you do now.

"But that relationship, it seems to me, should be a very happy one. With literally millions of additional patients seeking out doctors for medical advice, your volume in drugs and medicines should show a corresponding gain. Certainly, the more patients there are seeking medical advice, the more customers there will be handing their prescriptions across your counters. And certainly there is no reason to suppose that, for their minor ills, the American people will give up their well entrenched habits of relying on tested and useful proprietary remedies. My own guess is that in such an expanded market you will sell more aspirin and more mineral oil.

"Beyond this, your customers as a whole will have relatively more money to spend for drugs and medicines than they do now. And this is something I think most of you gentlemen may have overlooked. In the event of an illness, all doctors' and hospital bills will be met out of the insurance fund. No patient will have to worry about these expenses. For that reason, the cost of ordinary drugs and medicines will present much less of a problem to the average pocketbook. In fact, it would be the only medical cost that would require outright money in hand. As a consequence, there would be far less tendency to economize on drugs than if it represented only one of the many and heavy expenses of a serious illness. And for your purposes, gentlemen, that should be all to the good."

The druggists were not taken in by the Federal Security Administrator's promises. Mr. Robert L. Lund, President of the St. Louis College of Pharmacy, called it "an appeal to the pocketbook rather than to principle," which it certainly was.

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Arizona Medical Problems

CONSULTATION AND CASE ANALYSIS

ARIZONA MEDICINE again presents an unsolved and difficult case from the practice of Arizona physicians, with the Case-Analysis and comments of a specially-chosen and nationally-known Consultant.

Any physician who has an undiagnosed case which has defied other methods of solution may send it for consideration. The case should be completely worked up, but an editor will help compose the report. Whenever the need for an answer is urgent, the Consultant's reply will be sent direct to the submitting physician, before publication.

Please send communications and data to Dr. W. H. Oatway, Jr., 123 S. Stone Avenue, Tucson, Arizona, or care of The Editor, Arizona Medicine.

The current case is, without any quibbling, not only difficult but tricky. It is an assignment in medical gymnastics. It is, furthermore, a problem with a solution which will be supplied, most properly, *at the end of this section.*

The CONSULTANT for the case is *Dr. Stanley R. Edwards,* a physician in private practice in Los Angeles, a member of the staffs of several hospitals in that city, and an instructor in medicine at the University of Southern California.

Dr. Edwards represents the type of physician who might see a patient such as will be described, and who is perfectly qualified to make a fast, accurate analysis of the case. He received his M. D. from the University of Wisconsin, took an interneship at the Medical College of Virginia at Richmond, and then had a four year residency in internal medicine at the Wisconsin General Hospital. He has written medical reports on esoteric subjects, and among his professional connections is membership in the American College of Physicians.

CASE NUMBER XXII

The patient is **a white woman, 32 years of age.** She was a native of Texas, has lived in numerous states as the wife of an army officer, and came to Arizona several weeks ago because of the climate.

The patient has had **a known bronchiectasis** for many years, and a brother is said to have a similar condition. About a year ago **the lower lobe of her right lung was removed** at an eastern army hospital, and she recovered slowly, due to an infection of the chest wall. She is not sure if all of the diseased tissue was removed on the right, but said that **the doctors suspect bronchiectasis of a lesser degree at the left base.**

She called a physician for the first time in Arizona because of **a 'cold'** which had not cleared, and **a severe headache** which had been present for 24 hours. She was in bed, and appeared quite ill and uncomfortable. She had a fever of 101 degrees, complained of abdominal distress, and had vomited twice in the preceding two hours. There was an occasional chuckly cough, and a pint jar was half-full of a **muco-purulent sputum** —her recent average expectoration for a day. The headache was generalized, and had not responded to aspirin or empirin compound. She had been given an enema with fair results.

At bedside examination, her color was pallid and her skin was moist. Her respirations were 24 per minute, and regular, and the pulse was regular at 104 per minute. The special senses were normal, the reflexes were all slightly hyperactive, there was general tenderness to light percussion on the head and posterior cervical area, but the neck was not stiff. The breath sounds over the right lung were distant and there were no rales; on the left side there were intermittant coarse moist rales at the base, which cleared on the raising of secretions. The abdomen was slightly tender throughout, and there were some tympanites, but there was nothing unusual or suggestive in the findings.

The patient then recalled that about **7 or 8 weeks previously** she had been ill, had seen a gynecologist, and he had been puzzled by "a lower abdominal condition" (accompanied by malaise and headache). He had given her **a "sulfa drug",** and warned her to come back; she took the pills for a few days, felt better, and did not return because of personal affairs. The story could not be clarified further.

The impressions included bronchiectasis of the left lung base, post-lobectomy pleural thickening on the right, dehydration and undernutrition, and an acute respiratory infection. A central nervous system lesion could not be ruled out.

It was decided to start sulfa-diazine by mouth at once, with alkalis and fluids as tolerated. A nurse was obtained to help and observe the progress overnight. Codeine and an ice-cap were used for the headache.

At 7 A. M. the next morning a report was telephoned that the temperature was 102 degrees, she had failed to keep most of the medication down, the headache was unchanged, and **she had become slightly deaf in the left ear.**

The patient was immediately sent by ambulance to the hospital, where she could be examined and treated more quickly and carefully.

QUESTIONS:

1. What is the most probable diagnosis?
2. What diagnostic measures should be attempted first?
3. Could you suggest a plan of therapy?
4. Is the episode of two months previous of any significance?

* * * M. D., Tucson.

ANALYSIS AND ANSWERS:—

1. *What is the most probable diagnosis?*

Brain abscess is the most likely possibility, in view of the past and present bronchiectasis.

A mycotic infection of the lung, such as torulosis, histoplasmosis, or coccidiosis, and transmitted to the brain, is also a possibility.

Bronchiectasis is frequently accompanied by severe sinusitis, and is likely to flare up with a "cold", so one would think of a severe *sphenoidal sinusitis;* a frontal sinusitis with erosion of bone should give more localization of pain in the face or forehead and more meningeal signs.

Another diagnosis which must be considered, especially in view of the warning that the case is a tricky one, is an entity not connected with her past ills—an *infectional meningitis,* such as that caused by the meningococcus or pneumococcus. A meningitis caused by tuberculosis or some other systemic disease is not impossible.

2. *What diagnostic measures should be attempted first?*

A *white blood cell and differential count* may be done to quickly differentiate the pyogenic from the non-pyogenic infecting agents.

A *spinal tap* should be done at once. Direct smears may indicate the causative organism. Cultures should also be made, and the media might include Sabouraud's for the mold-fungi group, and tryptose broth under CO_2 for brucella if the smear is not diagnostic.

A *blood culture* would seem to be indicated for diagnosis, and to guide therapy in case of a bacteremia.

These tests could be completed soon after the patient was admitted to the hospital. The next reasonable diagnostic step would be to *repeat the questions* so that a better delineation of the symptom sequence might be obtained. Oft times, by casting the net again, the diagnosis may be caught up.

3. *Could you suggest a plan of therapy?*

Since this patient seems acutely ill with a serious condition apparently due to an infection, it would be logical to attempt to combat the infection either with large doses of one of the sulfa drugs or a combination of anti-biotics in adequate doses as soon as the spinal tap and blood culture is obtained.

At the present time, a combination of penicillin and streptomycin would be quickest and the method of choice. As we know more about them, Aureomycin or Chloromycetin may offer an advantage.

This blanket type of therapy should *not* be begun, however, until specimens for the diagnostic procedures have been obtained.

The specific treatment for the condition will depend upon what diagnosis is established. If it is a brain abscess, it will require the service of a neurosurgeon. Certain types of meningitis would require a shift in drugs from the "shotgun" to the "rifle." Meningococcal infections still respond well to the sulfonamides.

4. *Is the episode of two months previous of any significance?*

It might be. The previous illness could have been unconnected with the present episode, or it might have been the early manifestations of an infection which was temporarily aborted. Such a situation has been reported, with as many as five meningeal recurrences of meningococcal or pneumococcal infections.

A disease occurring in a woman who had been traveling from place to place, which was characterized by severe malaise, abdominal pains, and vague abdominal findings, which responded temporarily to sulfadiazine but recurred in the brain, might be brucellosis. And brucellosis becomes at least a suspected condition. The diagnostic tests and the early therapy should determine the point.

Stanley R. Edwards, M. D.,
676 S. Westlake Avenue,
Los Angeles, 6, California.

* * *

(The *actual diagnosis* which was made by a smear, and later culture, from the spinal fluid was *meningococcic meningitis.* It was coincidental to the patient's lung disease, which simply confused the diagnostic view. It was later learned that a neighbor child had also had the disease a week or so previous, and that the patient's child had a diplococcus in the throat which disappeared after treatment with sulfadiazine. The patient recovered in a few days after treatment with intravenous sulfadiazine.—The Editor.)

PHOENIX CLINICAL CLUB

Massachusetts General Hospital
Case Record No. 33221

First admission: A forty-two-year-old housewife entered the hospital because of vaginal bleeding.

The patient had been in excellent health until six months before entry, when she had first noticed slight generalized weakness and easy fatigability. Three months later an unusually prolonged and profuse period had occurred, and she had subsequently had some intermittent intermenstrual bleeding associated with abdominal cramps, gradually increasing in severity. She had also had occasional hot flashes. During the next to the last period, which occurred four weeks before entry, she used ten to fifteen napkins a day and passed some blood clots. Abdominal cramps were again severe, and she had one episode of "cold sweats" and fainting. Since then she bled almost every other day, requiring as many as ten napkins a day. Six days before entry she began to bleed constantly, passing some small clots, and on the day before entry she passed a clot the size of a fist. During the three days before entry she occasionally had chilly sensations and fainted several times. There had been no pain or headaches.

The patient had begun to menstruate at the age of sixteen years, and until the present illness the periods had always been regular, occurring every twenty-six to twenty-eight days and lasting for five or six days. They had always been somewhat profuse. She had had six children, the eldest of whom was twenty-six years and the youngest fourteen years of age. In the two months before entry she had lost about 10 pounds. She had not had intercourse for eight months before entry.

Physical examination revealed a pale, somewhat obese woman. The heart, lungs, and abdomen were normal. There was a slight cystocele and first-degree procidentia. There was a bloody discharge from the cervix. The uterus was about twice the normal size and in third-degree retroversion.

The temperature, pulse and respirations were normal. The blood pressure was 130 systolic, 70 diastolic.

Examination of the blood disclosed a red-cell count of 3,300,000 with 12.0 gm. of hemoglobin, and a white-cell count of 5400 with 60 per cent neutrophils. A blood Hinton test was negative. The urine was normal.

On the third hospital day a total hysterectomy was performed. The cervix was bilaterally ulcerated and contained some small Nabothian cysts. The uterus measured 10 by 4 by 3 cm., and the myo-metrium was studded with firm yellowish-orange nodules, 1 or 2 mm. in diameter. The endometrium was reddish orange and 1 mm. thick except at the fundus, where a 1.5 cm. polypoid mass was present. The pathological diagnosis was neurofibromas of the myometrium. The patient recovered uneventfully and was discharged on the seventeenth hospital day.

Second admission (two years later): Following discharge the patient continued to complain of weakness. She also had slight stress incontinence, which was the presenting complaint. The weight had increased from 149 pounds at the time of the first admission to 158 pounds.

The physical findings were essentially unchanged. The hemoglobin was 15.0 gm., and the white-cell count 5400. The urine was normal.

On the fourth hospital day an interior colporrhaphy and a perineorrhaphy were performed. The postoperative course was uneventful, and the patient was discharged on the fifteenth hospital day.

Third admission (fourteen months later): For several months after the operation the patient was well and continent of urine. Then, slight incontinence returned. Also, she continued to suffer from weakness and fatigue. Iron pills prescribed by a physician were of no avail. For ten months she had had occasional attacks of nausea and cramps in the "pit of the stomach." These episodes usually came within thirty minutes to an hour following a meal. She had no intolerance to fatty foods. She also complained of increasing constipation and frequent hot flashes and jittery spells lasting about fifteen minutes at a time. She had lost about ten pounds in weight despite progressive enlargement of the abdomen for several months.

On physical examination the patient appeared chronically ill. The lungs were clear. The abdomen was protuberant and tympanitic. Peristalsis was active. A large, poorly defined, somewhat moveable, hard, slightly tender mass filled most of the right lower and middle portions of the abdomen. It was ovoid in shape, with its long axis parallel to the long axis of the body, arose in the pelvis and extended to the umbilicus. A smaller cystic mass was felt in the left pelvis, and there was a mass dissecting down between the rectum and the vagina.

The temperature was 102.5°F., the pulse 120, and the respirations 25. The blood pressure was 120 systolic, 75 diastolic.

Examination of the blood revealed a hemoglobin of 11.2 gm. and a white-cell count of 15,500 with 89 per cent neutrophils. The nonprotein nitrogen was 25 mg. and the serum protein 6.7 gm. per 100 c.c.

The urine gave a two plus test for albumin. The sediment from a catheterized specimen contained 3 red cells and 20 white cells per high

power field. Cultures showed abundant colonies of colon bacilli.

X-ray examination disclosed an area of horizontal linear density in the left lower-lung field. There were a number of rounded, calcified areas with centers of decreased density in the right upper quadrant of the abdomen. A rounded calcified mass, 3 cm. in diameter, was present in the left upper quadrant. The kidneys appeared normal in position and size, the right being slightly larger than the left. Both excreted intravenous dye promptly, and the urinary passages on the left appeared normal. There was a marked accumulation of the dye in the right kidney two hours after injection and moderate dilatation of the right pelvis, calyxes and upper right ureter. Both ureters were displaced laterally by what appeared to be a lobulated mass about 13 cm. in diameter in the midpelvis. This compressed the upper border of the bladder. A second, rounded mass about 11 cm. in diameter was lying over the upper border of the sacrum on the right. These masses were rather sharply defined, smooth and free of calcification. A barium enema showed no evidence of intrinsic bowel disease.

On the sixth hospital day an operation was performed.

DISCUSSION

Dr. Robert S. Flinn:

Six months before entry to the hospital this patient began to be weak. Three months later she had a profuse but apparently regular monthly period following which intermenstrual bleeding began. On admission to the hospital her uterus was found to be twice the normal size with third degree retroversion. At the time of operation the myo-metrium was studded with firm, yellowish orange nodules, one or two millimeters in diameter. A polypoid mass was present at the fundus.

Three years and two months later the patient continued to suffer from weakness and fatigue. A large, poorly defined, movable, hard, slightly tender mass filled most of the right lower and middle portions of the abdomen. A small cystic mass was felt in the left pelvis and there was a mass dissecting down between the rectum and the vagina. On the sixth hospital day an operation was performed and we are supposed to guess what was found at operation.

Although there are many conditions arising in the uterus and ovaries which might produce these masses, such as carcinoma of the body of the uterus; epidermoid carcinoma and adeno carcinoma of the cervix; benign and malignant cyst of the ovaries and inflammatory cysts, including ovarian abscess and tuberculous abscess, it appears that the diagnosis rests between chorionepithelioma and endometriosis. Chorionepithelioma is a rare malignant disease which occurs in women over 40 years of age and is accompanied by irregular uterine bleeding. Hydatidiform moles frequently precede the development of chorionepithelioma. While it is said to always immediately be preceded by pregnancy, it has been found to arise months or even years after a full term labor; an abortion or an ectopic pregnancy. In rare cases, a chorionepithelioma may disappear spontaneously without treatment. However, these occurrences are exceedingly rare and usually the tumor is so virulent that unless treatment is instituted, most patients die within one year from the time the symptoms are observed.

In the patient under discussion, no pregnancy preceded this bleeding for some time, since the youngest child was 14 and there is no history of any abortion or miscarriage. The fact that the patient is alive at the end of three years and a half is also evidence against chorionepithelioma so we must reluctantly discard this as a possible diagnosis. This leaves us with endometriosis and I am inclined to hazard a guess that this is the diagnosis based not only on the history but especially on the description of firm, yellowish, orange nodules in the myometrium which were diagnosed as sarcoma.

The development of our knowledge concerning misplaced endometrial tissue and the nature of perforating hemorrhagic cyst of the ovary constitutes a fascinating chapter in modern gynecology.

W. W. Russel was the first to discover endometrium in the human ovary. Nine years later Cohen published his investigations in which he cited numerous instances in which uterine epithelium had been found deep in the uterine wall. In 1921 Sampson announced that the endometrium was found in the ovary quite commonly, that well known perforating chocolate cyst of the ovary were often really of endometrial origin and that the endometrial masses in other situations could be derived from the ovary by rupture of the endometrial or chocolate cyst. These cysts exhibit periodic histologic menstrual phenomena, show decidual reaction during pregnancy, are subject to malignant metaplasia and retrogress after the cessation of ovarian function either by surgery or the meno-

pause. Casler, for example, reported a case of a woman who insisted that she continued to menstruate after he had removed the uterus. He told the woman that she must be mistaken but retracted this statement when he found that she was actually menstruating from endometrial tissue in an ovary which he had conservatively left behind at the first operation. The demonstration that many chocolate cysts of the ovary are endometrial explains possibly the source of some of the endometrial growths that are found in various other parts of the pelvis.

In advanced cases of ovarian endometriosis, one usually finds endometrial implants in situations which are very difficult to attack surgically. This is particularly true of nodules high in the sigmoid; the rectovaginal septum; the cervix; the uterosacral ligiments and the bladder. The effort to remove these growths would enormously increase the gravity of the operation and open a way for all manner of post-operative complications. Furthermore, since these conditions are benign and since their activity is entirely dependent upon the stimulus of ovarian tissue, no effort is made to extirpate them when the procedure entails notable complications or risks. In such cases, the complete removal of the ovaries almost invariably reduces such ectopic endometrial tissue to a state of complete inactivity.

In 1943 James R. Goodall of McGill published a classic study on endometriosis and divides endometriosis of the uterus into the mixed and stromatous types. The endometrial overgrowth is generally composed of both the glandular and stromatous constituents of the endometrium in normal relations but these two elements often lose their normal relative proportions and at times we may find such endometrial hyperplasia made up chiefly of glandular elements with a minimum of stroma, while in other cases are grossly made up wholly of stroma cells. When cuttings made from the stromatous endometriosis are sent for a diagnosis, the absence of glands almost invariably suggests the diagnosis of sarcoma. Goodall describes two cases of acute stromatous endometriosis with restricted malignant in character. One patient, a 57 year old woman, was operated upon for a fibroid. A diagnosis of sarcoma of the uterus was made. Two years later, the pelvis was filled with a new growth. The patient was treated with x-ray therapy and remained well for approximately eight years. Microscopic study of sections from all parts of the body revealed endometrial metastasis including metastasis to the lung.

In conclusion it seems to me that if we are to accept the pathologist's diagnosis of a condition resembling a sarcoma at the time of operation and since stromal endometriosis has not infrequently been confounded with sarcoma, and since the symptoms of weakness, fatigue, irregular bleeding and multiple abdominal masses so closely fit a diagnosis of endometriosis, I am forced to make such a diagnosis and suggest that it is a stromatous type of endometriosis perhaps with malignant characteristics and that the lesions in the lung were probably due to metastatic endometriosis.

Dr. Paul A. Younge: On the first admission the patient had a cystocele and a first-degree procidentia. There is often confusion between the terms "prolapse" and "procidentia" of the uterus. Procidentia, as we use the term, means that the uterus is outside the introitus.

Dr. Francis M. Ingersoll: I should say that the uterus was moderately prolapsed; it just came down to the introitus.

Dr. Joe V. Meigs: Then this was not a procidentia.

Dr. Younge: I should say, a second-degree prolapse.

Symptoms of cramps with flowing usually mean a definite intrauterine lesion such as pedunculated fibroid or pedunculated adenomyoma. Occasionally, with dysfunctional flowing, large clots are passed in association with cramps, but there is not so much intermenstrual bleeding as this patient had. From the history, I think that she had a submucous pedunculated tumor. Another lesion that could cause the symptoms is a carcinoma of the cervix obstructing the cervical canal. This results in pain and intermenstrual bleeding that is perhaps not so profuse as that in the case under discussion. I assume that dilatation and currettage were not done beforehand, since no mention is made of such procedures.

The uterus that was removed is described as measuring 10 by 4 by 3 cm.; that fact fails to substantiate the clinical finding of a uterus twice the normal size because the measurements are those of a normal or somewhat small uterus. There was a small intrauterine tumor, which may have caused the symptoms of cramps and bleeding. The gross description sounds like an

endometrial polyp, and I am mystified by the pathological diagnosis of neurofibroma of the myometrium. That is a completely new lesion of the uterus as far as I am concerned, and I do not know its significance. It is possible that it was a part of a generalized neurofibromatosis, but there is no confirmatory evidence for such a hypothesis in the history or the physical examination. I also fail to understand why at the first operation nothing was done about the relaxed pelvic floor.

On the third admission the outstanding symptoms were loss of weight, general debility and cramps and nausea after eating. Physical examination disclosed bi-lateral pelvic masses, one of which extended up into the abdomen. The intravenous pyelogram demonstrated ureteral obstruction on the right. The pelvic tumor that most frequently causes obstruction in the urinary tract is carcinoma of the cervix, and I have considered that diagnosis seriously in spite of the description of the cervix at the time of hysterectomy. The ovaries were not removed at the first operation, and bilateral pelvic tumors and gastrointestinal symptoms such as she had make one think of a Krukenberg tumor. The ovaries may have developed a primary malignant tumor, but carcinoma of the ovary seldom causes ureteral obstruction. The patient must have had an infiltrating tumor in the broad ligament obstructing the ureter, and we know she had an infiltration of the recto-vaginal septum. This again makes one think of carcinoma of the cervix, but since that is apparently ruled out, my diagnosis is a Krukenberg tumor of the ovary, bilateral, with metastases in the pelvis causing ureteral obstruction and hydronephrosis. She also had gallstones. I am not certain what to say about the x-ray findings of the lungs—they may have been due to a thick interlobar septum and were probably not due to cancer.

Dr. Stanley Wyman: The area of linear density lies in the left lower-lung field just above the diaphragm. There may be some collapse of the lower lobe. I think of atalectasis. This plain film of the abdomen, taken on the same day, shows a rounded mass. A second overlying shadow is faintly discernible at this point, and a third round mass overlaps, with some gas apparently flowing around it. The small areas of calcifed ring-like density that are seen in the right upper quadrant conform to the configuration of the expected site of the gallbladder. This is the mass of round calcification seen on the left. After the intravenous introduction of dye, the first film shows delay in excretion by the right kidney, presumably due to the obstructed ureter. The film taken two hours after the introduction of dye shows considerable dye remaining in the upper urinary tract on the right. The barium in the small intestine outlines the soft-tissue mass.

Dr. Younge: I did not realize that there were three pelvic masses.

Dr. Wyman: I do not know whether there are three or whether it is one lobulated mass.

Dr. Younge: Since one of the original lesions was a neurofibroma, I suppose that one should consider neurofibrosarcoma. But I know nothing about that. I do not know what to expect benign uterine neurofibromas to be accompanied by or followed by, and I shall omit that as a possibility and stick to the diagnosis of Krukenberg tumor.

Dr. Tracy B. Mallory: The diagnosis of neurofibromatosis of the uterus was made during my absence from the laboratory, and I disclaim responsibility. I do not wonder that the pathologist was puzzled by the sections. This is from the polypoid tumor in the uterine cavity and shows a few widely dispersed endometrial glands separated by exceptionally abundant endometrial stroma. In this stroma were numerous whorls of exceptional cellularity. Similar masses of small spindle cells, also with a tendency to whorl formation, invaded deeply into the myometrium. The pattern resembles that seen in tumors arising from nerve sheaths, but I do not believe that I should have made that diagnosis. I seriously considered the possibility of a granulosal-cell tumor primary in the ovary, but the apparent normality of the ovaries at the first operation made this extremely improbable. I finally decided that an endometrial sarcoma was the best diagnosis.

Dr. Younge: Could you exclude leiomyosarcoma or cellular leiomyoma? We have had a recent case of so-called "cellular Leiomyoma" in which the patient is dying of metastatic sarcoma. The lesion in the case under discussion may have been a sarcoma.

Dr. Mallory: I believe that one can rule out leiomyoma or leiomyosarcoma, since these cells are tiny spindle cells, much smaller than muscle cells.



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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

CLINICAL DIAGNOSIS

Carcinoma of the ovary?

DR. YOUNGE'S DIAGNOSIS

Krukenberg tumor of the ovary.

ANATOMICAL DIAGNOSIS

Endometrial sarcoma?

Stroma endometriosis (endolymphatic fibromyosis of Frank)?

PATHOLOGICAL DISCUSSION

Dr. Mallory: Dr. Ingersoll, will you tell what you found at operation?

Dr. Ingersoll: At operation the lower half of the abdomen was studded with a polypoid type of tumor that had infiltrated the omentum and was adherent to the abdominal wall. In the pelvis there were other masses of a similar type of tumor. It was not like any tumor that I had seen before. The omentum and other tissues seemed to be studded with smooth, round masses of varying size. We resected the omentum but were unable to remove the tumor in the pelvis.

Dr. Meigs: Did you remove the ovaries?

Dr. Ingersoll: No; the small bowel, the large bowel and everything else were adherent in the pelvis.

Dr. Meigs: I bring up that point for later discussion in connection with the treatment. It may be important. You did not consciously remove the ovaries?

Dr. Ingersoll: No.

Dr. Mallory: The Pathology Department worried over the diagnosis of this case once more for several weeks after the third operation. The probable clue to it, I think, was found, not in the original sections of the uterus, but in the new tumor growth of the omentum. This presented a peculiar appearance—multiple nodules of varying size, some less than a millimeter in diameter, of a small, spindle-cell neoplasm, which was projecting into and growing in the lumen of spaces lined with endothelium that seemed to be tremendously dilated lymphatic vessels. The tumor corresponds entirely in its histologic appearance to a group of lesions that were reported some years ago by Frank[1] at the Mount Sinai Hospital under the title of "endolymphatic fibromyosis of the uterus." The same tumor has unquestionably been called by other names. I am quite sure that it has been referred to at times as stromal endometriosis, and in certain respects it suggests that condition. We have had a case in the old records of the hospital that Dr. Meigs[2] studied some years ago and illustrated in his book. I suggest that he say something about it.

Dr. Meigs: When I ran across this tumor in going over the histologic sections in the laboratory, I called it a "leiomyosarcoma invading a fibroid." Dr. Goodall[3] and later Dr. James Miller[4] of Hartford, reported a stromal endometrium, having all the characteristics seen in this picture. This picture in my book, which was drawn without knowledge of what it was, demonstrates the small worm-like nodules growing in the lymphatic vessels of the fibroids. Our case was undoubtedly a stromal endometrium invading lymphatic vessels and was similar to Dr. Miller's case.

May I ask Dr. Ingersoll if x-ray treatment was given? In certain cases of stromal endometriosis, even though the tumor appears extremely malignant, with extensive invasion of the lymphatic vessels, x-ray treatment has been effective, presumably as the result of abolishing ovarian function. If this patient received x-ray treatment, what happened to her?

Dr. Ingersoll: She was extremely ill throughout her stay in the hospital, and we gave an unfavorable prognosis, not knowing what type of tumor she had. She received a total of 4100 r during a three weeks period. When seen in my office four months later she looked well. All the masses have disappeared except the one in the recto-vaginal septum.

Dr. Meigs: That is what Goodall and Miller state: that x-ray treatment, not of the tumor but of the gonads, may perform the miracle that seems to have been performed. This tumor and the one in the book are similar. My patient also is living and well, after a total removal of the genital organs. It looked as if she could not live when one saw the tumor masses, but she did.

Dr. Ingersoll: One of the patients in Frank's original cases responded well to x-ray treatment. The tumor had been incompletely removed, and following operation the patient received x-ray treatment and survived for a long time.

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RX, DX, AND DRS.

By Guillermo Osler, M. D.

The interpretation of WHAT AN ELEPHANT IS depends, as usual, on where you stand and who you are. . . . The House of Representatives sent its Committee on Interstate and Foreign Commerce to England and Sweden to observe that famous elephant, governmental medical service. . . . In general the elephant looked large and white to them. Most of the eleven members do not like elephants. Some of them were willing to look at the elephants, but others never want to see one again. Their opinions did not depend much on whether the congressmen were Democrats or Republicans. . . . Only one lawmaker really found many good points in the critter, and he was sold on it before he went abroad. Even he admitted that elephants have an awfully large appetite.

About a year ago the growing list of ANTI-HISTAMINE DRUGS was printed in this column. . . . Since then an occasional comment has been made (the reported special value of Trimeton, etc.). . . . The names are of little importance now, at least for prescription use; the Food and Drug administration has authorized their public sale. They felt that such a drug as "Neohetramine" (Nepera Chemical Co.) was scantily toxic and safe. . . . So, the devil take the hindermost in the race to get drugs out for cold-prevention; "Anahist", "Inhiston", etc., are only the beginning. . . . The public often considers doctors to be selfish if an objection is made to the release of a drug, but IT WOULD BE ULTRA-SENSITIVE IF WE DIDN'T SAY that these drugs may not be entirely harmless, may not be wholly valuable, and may not always be taken at the correct time by the public.

Somewhere in the recent literature may be a report on the cure of acute BELL'S PALSY by aureomycin. If so, we haven't seen it. . . . The condition can have any of several causes, and one of them may be a virus. Aureomycin has been reported as effective in several virus infections. . . . The current case is that of a girl of 20 years who "caught a cold" in her neck during a chilly change in the weather. The immediate result was a right posterior cervical neuralgia, and two days later an abrupt paralysis in the right facial distribution occurred. . . . The condition was afebrile, and the nose, mouth, and throat were normal. It was decided to try a four-day course of aureomycin, and the drug was tolerated without toxicity. . . . On the third day the paralysis decreased; at the end of a week it was two-thirds gone; by the tenth day it had cleared. This is sooner than the most rapid recovery noted in the literature, which usually requires weeks to months. . . . One case is too few for an article, but just right for this paragraph.

Less than a year ago the early use of aureomycin was described in this column. . . At about the same time a case of amebiasis was analyzed by Dr. Lindskog in the "Arizona Medical Problems" section. . . . Six months later McVay has reported the apparent effectiveness of AUREOMYCIN IN AMEBIASIS. It cleared the stools of both cystic and trophozoite forms of Endameba histolytica and, with very high blood levels, could be of value in extraintestinal lesions such as liver abscess. . . . The usual precautions against drawing conclusions from one case are again added.

Bryant and colleagues at Ann Arbor have devised a simple URINALYSIS which can be used in the home to regulate the use of a LOW-SALT DIET. It tests the sodium chloride excretion by use of potassium chromate, to which silver nitrate is added by drops. The end-point is clear cut and diagnostic.

NEEDLE-BIOPSY OF THE LIVER has a precise, valuable place in diagnosis of liver lesions—especially the diffuse ones. The complications before recently have been somewhat prohibitive. . . . R. C. Cogswell and colleagues of Cincinnati now report 403 attempts on 345 patients with no serious reaction, and with only 24 failures to obtain adequate material. . . . Though the entrance was usually made transpleurally, only two pneumothoraces occurred. Bleeding, the previous bugaboo, was rare, due to selection of cases and routine use of vitamin K after the procedure. . . . We have always wondered why a needle could not be constructed to allow the tissue to be withdrawn, following which a small core of coagulating-foam could be inserted through the carrier needle and left in situ. Probably it isn't feasible or (now) necessary.

Adults who develop MUMPS have always had a phobia about its complications, and it has been a real hazard to army groups, etc. . . Hoyne, Diamond, and Christian have demonstrated in Chicago that 2 mg. of diethylstilbestrol daily by mouth reduces the incidence of ORCHITIS from one in four cases to one in twenty-five. It also relieves the condition in three to five days once it has occurred.

Here is another progress note on REPLACEMENTS FOR RESECTED LUNGS. . . . Claggett and colleagues at the Mayo Clinic previously re-

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ported a trial of sealed lung-shaped bags made of polythene and lucite; they filled the space and prevented a mediastinal shift in dogs, but polythene bags broke and lucite bags fit poorly. . . . The "Proceedings" for October 12th reports the use (by the same authors) of a plastic sponge material ("Ivalon") which is derived from formalinized polyvinyl alcohol. It has been trimmed to fit the hemithorax in dogs, faced with a polythene sheet medially, and sutured in place to the lateral chest wall. It is soaked in penicillin before insertion. . . . The post-operative condition has been good; no inflammatory reaction has occurred; the medial and diaphragm surfaces have developed an avascular collagenous coating; the sponge is adherent to the thoracic wall; and the interstices in the sponge become lined with a single layer of tissue, like vascular endothelium. . . . They feel that it is ready for trial in humans—and we hear that more than one surgeon is trying it.

A District of Columbia physician has been rude enough to give a report entitled "ATOMIC BOMBS OVER WASHINGTON." He made things even more sanguine and graphic by adding to his analysis and speculation several diagrams of the city, with "zero points" of attack, and zones of possible effect. He completes the gruesome picture by deriving the number of casualties which would occur with an attack at the most vulnerable time (5 A.M., Sunday, July 6, 1952—before dawn on a hot morning after Fourth of July week-end!).

Brief notes on odd effects of the new ADRENAL CORTEX HORMONE, — ACTH has been found by Torda and Wolff of Cornell to produce a partial, prolonged (3 months or more) remission in myasthenia gravis. A return to the normal neuro-musculo-chemical balance followed a preliminary relapse of five days after therapy. . . . Boland and Headley of Los Angeles have found the changes in arthritis from cortisone to be accompanied by a mental stimulation. Electroencephalographic studies showed an increase in the frequency of the alpha waves.

A new medical journal has a new section which is interesting. . . . "POSTGRADUATE MEDICINE", the journal of the Interstate Postgraduate Medical Association, has a department called "New Drugs and Instruments." . . . The paragraphs contain a description of each topic, with sources, usage, and precautions. The data come from the manufacturers, and are not certified by the journal.

It may be new to the outside world, but I'll bet they are already using it in Arizona! . . . Taplin, in the Annals of Allergy, has shown that MICROPOWDERED AMINOPHYLLINE or theophylline can relieve asthmatic attacks more rapidly by inhalation than when given intravenously. . . . He used from 5 to 60 mg. in a lactose vehicle, and obtained good results in 30 of 35 chronic cases. The duration of relief varied from 20 minutes to 8 hours. . . . New and combined methods for asthma are usually routine practice in Arizona before they are reported elsewhere. Sadly, Arizonans rarely report them, though they should (and in "Arizona Medicine").

It may come as a shock to physicians who induce PNEUMOTHORAX, but three Sea View Hospital (N.Y.) doctors proceed on the basis of belief that all initial punctures result in trauma, and in a leakage of air from the lung. . . . They suggest that the puncture be done purposefully, in a controlled manner, with a fine anaesthesia needle. The regular refill is then done a few hours later, if fluoroscopy has shown air to be present. . . . This all sounds like defeatism, especially when blunt needles with lateral-tip openings are available.

Whenever we become too specialized or scientific, the presence of simple symptoms or syndromes can bring us back to the basics. . . Have you thought about CRACKING JOINTS lately? Do you know their causes? . . . An Oregon physician notes that the probable cause is a fibrositis; the inflamed tissue contracts, and then stretches with a cracking noise when the joint is moved widely. . . . Low temperatures, high humidity, and the ionized air of storms are weather factors which are said to predispose. Nasal obstruction and catarrh are often associated.

Two groups have recently been concerned with bright new advances in the DRUG THERAPY OF TUBERCULOSIS. . . . Feldman and his colleagues at the Mayo Clinic have shown that PAS (Para-aminosalicylic acid) not only decreased the tendency of SM (streptomycin) to produce resistance in tubercle bacilli, but that it really augments the action of SM against tuberculosis in animals. PAS may produce a resistance to itself, but not unless given for more than four months, or if given with SM. The way by which SM works may have been indicated by some of their work with banal cultures, and other chemicals. The gathering of consultants to the Veterans Administration in Atlanta in mid-November produced several conclusions:—1. SM is better than the newer dihydrostreptomycin, and will be solely used in the future. 2. Discontinuous dosage is not showing good results (though many places use it). 3. Neomycin is still toxic, probably because of impurities, and may harm the kidneys; it is not ready for usage. (Today's paper reports its successful use in two non-tuberculous infections of the urinary tract. Dr. Bogen of Los Angeles says that there are three distinct compounds

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in what is known as Neomycin.) 4. The optimal doses are 1 gm. per day of SM, 12 grams of PAS; the best duration of combined usage is 90 days (though other groups like 6 to 8 weeks). 5. The new drug of Domagk's, "TB-1', was investigated in Germany by Dr. Hinshaw. The usage there was poorly notated and controlled; it equals PAS in effect alone, but not SM; it may be given orally for many months, and is about as toxic as sulfonamides; it has a notable effect on the larynx and intestinal lesions; it will have to be re-studied here, but lots of people want to use it meanwhile. . . . A San Francisco company has made a new PAS, called PASNA, which consists of stearate-coated granules which are tasteless, and much better tolerated than PAS.

If you want to confront doubters of VOLUNTARY HEALTH INSURANCE with simple facts, cite the growth of the Blue Cross. . . . 1938—1,000,000 subscribers; 1940—4,431,000; 1941—6,049,000; 1943—10,500,000; 1945—16,511,000; 1946 — 19,989,000; 1947—25,876,000; Dec. 31, 1948—33,000,000 (not counting 22 million other Americans protected against hospital expense by labor union and commercial insurance plans). . . . Each year the critics had a reason why the absolute limit had been reached. They were always wrong—and perhaps still are.

Probably a majority of physicians do not have reason to be concerned with the ills of children, or at least the RULES OF QUARANTINE. . . . The modern rules are surprising to one who is not au courant, and the recommendations of the American Public Health Association are even more radical than most D. of H. rules. . . . The duration of isolation has been generally shortened. The newer drugs, and a knowledge of etiology, are the responsible factors. . . . In New York City, for instance—SCARLET FEVER is isolated for one week, or as long as the symptoms last. The case is treated vigorously. The contacts are given a sulfa drug and allowed to go to school. . . . DIPHTHERIA is isolated for five days. Contacts are examined to see if they carry the disease. If negative they may stay out of the home and go to school; if they stay in the home, they are isolated as long as the sick child. . . . EPIDEMIC MENINGITIS is not quarantined if treated with modern drugs. Contacts are given sulfonamides, and considered safe in 24 to 48 hours. . . . POLIO cases are isolated only as long as they have a fever. Contacts are not quarantined, though they are closely observed. . . . MEASLES is treated by isolation for only five days after the onset of the rash. Quarantine rules have never been found to change the epidemiology. CHICKEN POX cases are now isolated for only a week after the vesicles appear. Crusts do not contain the virus, and are harmless. . . WHOOPING COUGH is infectious for less than two weeks after the whoop starts. The contacts may go to school unless symptoms of a cold occur. . . The simplicity and brevity of modern management is hard to believe—but easy on mothers.

The tendency of PENICILLIN to cause reactions when used by the oro-nasal route has been noted. It is being prescribed quite often to prevent complications from the "common cold." . . . Goldberg reports in the Ohio State Medical Journal 14 cases of CONTACT-SYSTEMIC REACTIONS, seen in a short period of time. The contact-type lesions in females may easily be confused with cosmetic dermatitis. . . . Inasmuch as there are no warnings of such a possibility on the inhalator, one must keep the hazard and diagnosis in mind. . . . Repeated minimal reactions may lead to a serious sensitization.

A colorful comment on THE SPEED OF MODERN MEDICAL PUBLICITY was written recently by Steven Spencer, a popular science writer for the Saturday Evening Post,—"The private practice of medicine is much more medicine and much less private than it was ten or fifteen years ago. The doctor, striving to familiarize himself with and to evaluate the parade of new drugs and techniques, finds an eager public looking over his shoulder — and sometimes breathing down the back of his neck. Etiology, diagnosis and therapy no longer form a mystic trinity of knowledge to which only the medical profession has access and which the patient must accept on faith."

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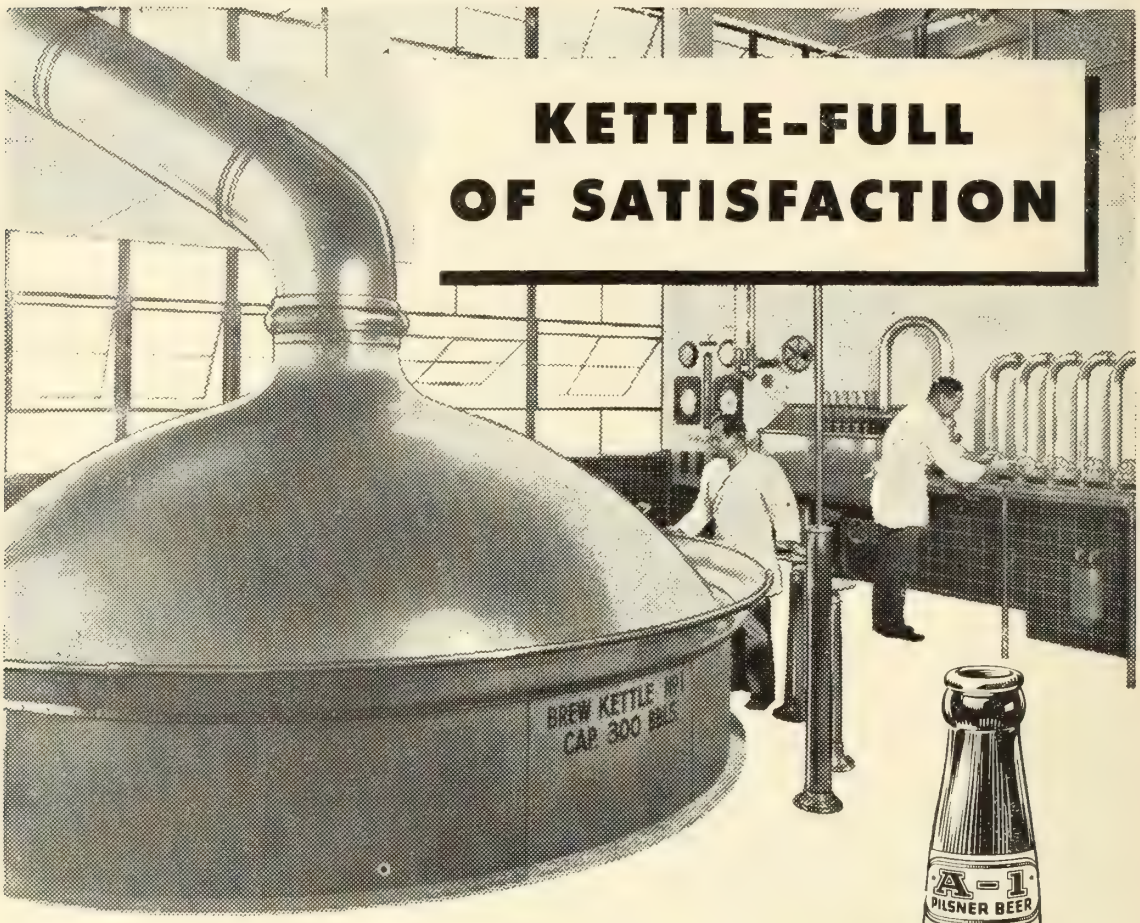
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PERSONAL NOTES

DR. JOHN R. MOTE, medical director of The Armour Laboratories of Chicago visited and was interviewed in Tucson. He is directing research on the ACTH hormone. Dr. Mote formerly lived in Tucson, attended the University of Arizona, and graduated from Harvard Medical School. He is enthusiastic over the prospects of help from the hormone, which is known to be of benefit in 32 diseases, and is being used in research in forty-five places in the United States.

DR. GLEN A. GIBBONS has been given his honorable discharge as an Army Medical Corps officer.

DR. CLARENCE KROEGER, former Pima County Health officer and now serving in a similar position at El Centro, California, has been named to a board for the study of water pollution problems in the Colorado River basin area in southern California. The appointment was made by Governor Warren.

The symposium on "Modern Treatment of the Bites and Stings of Small Desert Animals," published as a case-analysis in ARIZONA MEDICINE for July 1948, has been referred to as the model reference on antivenin therapy by the **QUERIES AND MINOR NOTES** section of the J.A.M.A.

DR. LAWRENCE REYNOLDS, Editor of the American Journal of Roentgenology, Detroit, addressed the Pima County Medical Society on "Polyposis of the Colon" at its December meeting. Dr. Reynolds also spoke before the staff and guests at the Veterans Administration Hospital on "Bronchiogenic Carcinoma."

Other speakers at the weekly V. A. meetings were Dr. Bert A. Cotton of Pasadena, California, who spoke on "Pulmonary Resection for Coccidioidomycosis," and Dr. Theodore B. Massell from the V. A. Hospital in Van Nuys, California, whose subject was "The Surgical Treatment of Hypertension; Arterial and Portal." Dr. Cotton also spoke at the V. A. Hospital, Whipple, on "Resection for Pulmonary Tuberculosis."

The plans for a $50,000 psychiatric unit at the Tucson Medical Center have been presented to the citizen advisory board by **DR. MARTIN F. HEIDGEN,** the administrator. The new unit would hold between 20 and 30 patients, and is said to be needed in the Tucson area. The state has less than half of the beds of this type which are estimated necessary according to population, and there are very few in Pima County.

DR. GRACE M. ROTH and **DR. DELLA DRIPS** of the Mayo Clinic spoke before the American Medical Women's Association at its winter meeting in Tucson. Thirteen Tucson members were joined by thirty-two members from elsewhere in the United States. Dr. Roth, who is secretary of the Minnesota Heart Association and of the vascular section of the American Heart Association, had as her subject "The Effects of Smoking on the Human Organism."

DR. J. P. WARD, state director of public health, has called attention to the new school sanitation code which has been adopted by the state department. Under the new code the lighting, heating, ventilation, water supplies, school lunch rooms, and similar facilities will have to reach minimum standards. This will apply only to new construction at present.

Dr. Ward has been challenged as to his authority in discharging an employee of the Maricopa County department in a suit filed in superior court. The employee was joined as plaintiff by **DR. PAUL McCRACKEN,** director of the county health unit.

DR. FRANCIS J. BEAN, superintendent of the Pima County General Hospital, has been forced to new economies in operation of the hospital. The average census is below that of 1948, but the cost per patient has risen steadily from $8.15 in 1946-47 to $13.83 for the early part of the current fiscal year. This problem is a general one.

The following named surgeons from Arizona were made Fellows in the United States Chapter, International College of Surgeons, at the Convocation ceremonies held during the Fourteenth Annual Assembly of the College in Atlantic City, New Jersey, November 7-11, 1949: **ARCHIE E. CRUTHIRDS, M. D.,** Phoenix; **JAMES M. OVENS, M. D.,**Phoenix; **CHARLES N. PLOUSSARD, M. D.,** Phoenix; **THOMAS WINFREY WOODMAN, M.D.,** Phoenix.

DR. KENNETH C. BAKER of Tucson, Arizona, attended the American Academy Meeting of Dermatology and Syphilology which was held at the Palmer House, Chicago, Illinois from December 3, 1949 to December 9, 1949 inclusive.

DR. BORIS ZEMSKY has recently addressed the Tucson Pan-Hellenic Society on "Sex Education in the Home", and showed a movie on social diseases. Dr. Zemsky also spoke before the Blenman P.T.A. on "Human Reproduction."

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The **ARIZONA TRUDEAU SOCIETY** held its annual meeting at the Westward Ho Hotel in Phoenix on December 3rd. The society is a regional affiliate of the American Trudeau Society, the Medical section of the National Tuberculosis Association.

The program consisted of papers by **DR. BERT COTTON** of Pasadena on "Pulmonary Resection for Carcinoma of the Lung;" by **DR. O. N. SHELTON** of the Veterans Administration Hospital in Tucson on "Streptomycin and PAS in the Treatment of Tuberculosis," and by **DR. GEORGE BOONE** of Tucson on "Pulmonary Denervation for Intractable Asthma." There was also a luncheon-business meeting.

DR. L. L. TITCHE of Tucson was elected President; **DR. HOWELL RANDOLPH** of Phoenix became Vice-President, and **DR. H. E. KOSANKE** of Tucson remained Secretary-Treasurer.

A panel discussion on "Better Health for Your Child" was held in Tucson under the direction of Frank Williams of the state health department. Among the members of the panel were **DR. W. B. STEEN** and **DR. ELIZABETH LAIDLAW** of Tucson. Dr. Laidlaw also attended a meeting of the coordinating committee on School Health in Phoenix as a delegate of the Arizona Medical Society. **DR. LILLIAN B. JOHNSTON** was elected as chairman to succeed Mr. Williams.

A fund of $10,338 has been allotted for study of methods to prevent pollution of Arizona ground and surface waters by the Federal Security Agency. The use will be by the state highway department.

DR. HAROLD SCHUMACHER, a mental hygiene consultant for the United States Public Health Service, discussed the needs for better hospitalization at a meeting of the Tucson Rotary Club. He was in the city for a meeting of the Council of Social Agencies.

DR. LEWIS H. HOWARD has been presented with a request for action on the question of hazardous ditches in Pima county by the county attorney. The health department will take immediate action to prevent tragedies from unfenced water-containing ditches.

The **UNIVERSITY OF UTAH** has announced that it may enlarge its college of medicine so that it may admit students from Idaho, Nevada, and Arizona. The school is the only one between Denver and the Pacific coast. The prompting to this step came from a recent regional governor's conference.

The Tucson Sanitarium has been sold to **DR. W. L. GROW** of San Bernardino, California. It will be known as Palm Lodge, and will be operated as a convalescent home for patients with chronic non-communicable diseases. The directress will be Miss Margaret Thomas who managed the Arizona Elks Hospital for 19 years until she resigned in August.

DR EHRLING PLATOU of Tulane University addressed the Arizona Pediatric Society in Phoenix.

DR. HOWARD COGSWELL of Tucson read a paper on Surgical Pancreatitis before the Southwest Surgical Congress at Houston, Texas.

The drive for funds to support the National Arthritis and Rheumatism Foundation has begun. The national president is **DR. W. PAUL HOLBROOK** of Tucson. He has joined **DR. C. E. BENSEMA** of the Tucson Chapter, and other state officers, in an appeal for funds.

The plans to establish a Rheumatic Fever Foundation in Wickenburg have been abandoned by the American Legion Post. Sufficient funds to convert the airbase facilities into a hospital could not be raised.

DR. BRUCE HART has announced the addition of three new members to the staff of the Arizona State Hospital in Phoenix. They are: **DR. JACOB SHAPIRO,** a psychiatrist formerly of the Washington State Hospital at Spokane; **DR. ALEXANDER McKEAN,** a psychiatrist formerly with the hospital at Fergus Falls, Minnesota, and **DR. M. J. FLATLEY,** a chest specialist who has recently been at Napa, California.

DR. ONIE WILLIAMS, Phoenix, attended a session of the California Society of Pathologists, the College of American Pathologists, and California Cancer Commission Friday and Saturday, December 2nd and 3rd in San Francisco.

DR. HARRY CUMMING, Phoenix, attended a meeting of the American Academy of Dermatology & Syphilology in Chicago, Illinois, starting December 5th.

DR. JESSE D. HAMER, Phoenix, was the Arizona delegate to the A.M.A. mid-winter meeting in Washington December 4th to 9th. He is a member of the Council on Medical Service.

DR. ERNEST A. BORN, Prescott, was elected to membership in the American College of Surgeons.

DR. PAUL McFARLAND, Phoenix, recently was made a diplomate of the American Board of Ophthalmology.

DR. JOHN GREEN, Phoenix, attended the Western Society of Electro-Encephalography meeting in San Francisco recently.

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DR. LOUIS B. BALDWIN, Phoenix, attended the Pacific Inter-Urban Clinical Club in Salt Lake City November 4th and 5th.

DRS. HUGH THOMPSON and **B. P. STORTS,** Tucson, and **DRS. W. P. SHERRILL** and **HENRY RUNNING,** Phoenix, attended the American Academy of Pediatrics meeting in San Francisco November 12th.

MR. ROLLEN W. WATERSON, Oakland, California, will speak to the Pima County Medical Society in Tucson, Tuesday, January 9, 1950 and Wednesday, January 10, 1950 to the Maricopa County Society in Phoenix on the Alameda County Society Program. He is the executive secretary of the Alameda County Medical Society, which has an outstanding program.

DR. D. W. MELICK, Phoenix, was elected President-Elect of the Maricopa Medical Society at its recent meeting.

DR. FRANK EDEL, Phoenix, was elected Vice-president and **DR. D. C. JAMES,** Phoenix, was elected Secretary-Treasurer.

Arrangements for the Southwest Medical Association meeting to be held in Phoenix in 1950 will be in charge of the following committee of Phoenix physicians: **DR. JOSEPH BANK,** Chairman; **DR. M. W. MERRILL,** Exhibits; **DRS. KENT THAYER, L. D. BECK, LLOYD SWASEY, JOHN COGLAND, PAUL JARRETT, CLARK McVAY** and **JOSEPH GREER.**

Report of the Delegate

Washington, D. C., Clinical Session,
December 6-9, 1949

Last year the Clinical Session of the A.M.A. attracted 4,526 registered persons to St. Louis, Mo., 2,200 of whom were physicians. In Washington, this year, the registration exceeded 8,400, with 4,258 physicians in attendance. During the four-day scientific session, dozens of papers of interest to the general practitioner were read, there were a goodly number of scientific and commercial exhibits, and the colored and plain televised program of operations and lectures from near-by medical centers attracted a full house at all performances.

The registration in the House of Delegates from the States, Scientific Sections, U. S. possessions and Government Medical Services was almost one hundred per cent. The House was favored by impromptu speeches from the Secretary of the Canadian Medical Association and the National Commander of the American Legion.

As usual, activities of the House consisted of receiving reports from the Officers, Board of Trustees, various Councils and Committees of the A.M.A., as well as accepting, modifying or rejecting reports of the various reference committees who had been assigned these reports. In like manner, commitments of policy were discussed, determined and accepted by the House by votes duly made and seconded, upon resolutions presented, covering many spheres of activity relating to medical care and practice.

A brief summary of some of the more important matters acted upon by the Officers, Board of Trustees, Councils and House of Delegates will be delineated in this report.

1. The Board of Trustees announced formally the retirement of Dr. Fishbein as Editor of the A.M.A. Journal. Dr. Austin Smith, former director of the Division of Therapy and Research and Secretary of the Council on Pharmacy and Chemistry, succeeds the former, while Dr. W. W. Bauer, Director of the Bureau of Health Education of the A.M.A. will replace Dr. Fishbein as Editor of Hygeia, the health magazine designed for the laity, and whose name will soon be changed to "Today's Health."

2. The House received its first report from the twelve-man Coordinating Committee, which is directing the National Educational Campaign, in cooperation with Whitaker and Baxter. The report showed a total of $2,250,000 collected from last year's assessment of which $2,050,000 was budgeted and approved for campaign expenses. Campaign literature cost was $1,045,614.52, organizational work was $139,415.27, and operation expenses $209,122.90, or roughly, of the total—75%, 10%, and 15% respectively.

3. Upon recommendation of the Board of Trustees and approved by the Reference Committee on Constitution and By-Laws, the House approved by unanimous action a proposal to establish dues in the A.M.A. for its members. The fee was set at $25.00 for calendar year 1950. This fee is aside from the $12.00 which members must pay for member Fellowships and subscriptions to the Journal of the A.M.A. Considerable discussion was displayed on the floor of the House relative to the method of collection of this $25.00 membership dues. It was finally decided that the fee should be collected by the local or state society in accordance with their own local custom and by-law provisions. It was made clear by the Chairman of the Board of Trustees, and annodated by the House, that physicians in retirement by reason of old age or permanent illness, or other disability, or those in financial hardship from any other cause, would not be expected to pay the dues. In case of non-payment of dues from any active member, financially able to meet this amount, a question arose over that physician's standing in his local medical society. The Board of Trustees will issue a statement in this regard within the near future, and its Chairman made it quite clear that the A.M.A. does not wish to

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jeopardize the privileges of any physician at the local level who is a member of his County Medical Society. Under the provisions of this action, the money so collected will be used to help cover expenses of the Association over and above the revenues received from its publications, in the promotion of Voluntary Health Insurance programs, and in the fight against the Administration's Compulsory Health Insurance proposals in Congress.

4. The House of Delegates approved a joint statement by the Council on Medical Education and Hospitals and Board of Trustees regarding the proposed bill, S-1453, regarding federal financial assistance to medical education. This statement was quite lengthy, dwelling on passages contained in a report by the Senate Committee on Labor and Public Welfare as amended. The joint report alluded to above and adopted by our House, concluded as follows: "Any program of grants-in-aid to medical education has far-reaching implications with respect to the freedom of medical schools. No program should be embarked upon until the protection of this freedom is absolutely guaranteed. The Board of Trustees feels that, since this bill does not guarantee such freedom and since the bill contains other undesirable features, as pointed out by the Council on Medical Education, it must urge opposition to the enactment of this bill—S-1453."

5. House Bill 6000, passed by the House of Representatives in the closing session of Congress in 1949 was considered by the Board of Trustees and their recommendations heard. This bill represents the Administration's version of liberalization and extension of the present Social Security Laws. Approximately eleven million persons are to be added to the rolls, including self employed, certain household domestics, salesmen and others (physicians are not included). The bill provided for raising the maximum taxable portion of wages to $3600.00. A new category of coverage included in the bill is the section which provides for compulsory contributions for permanent and total disability insurance, and the A.M.A. is opposed to this section of the bill, because it is believed that this provision would be an entering wedge for socialized medicine. The reasoning behind such opposition is based upon the following premises: "Major benefits for unemployment which are included in the Social Security System are adaptable to mass administration from an office remote from the individual. This type of administration, however, is not similarly applicable to those with total and permanent disability. Age, and in some instances unemployment, are conditions over which the individual is unable to exercise any control, but total and permanent disability often can be influenced by the disabled person and his physician. Initiation of a compulsory federal disability program would represent another step toward nationalization of medical care and socialization of the practice of medicine. If enacted, this bill would encourage further liberalizations which are not difficult to visualize, for example, payment of benefits to dependents of disabled persons, substitution of temporary for permanent disability benefits and eventually full case sickness and disability provisions. If such a plan were followed, a total national compulsory sickness taxation program for all practical purposes would be in effect. The A.M.A. recognizes the need for assistance to the disabled needy, but believes that this aid should be administered always on a local level, and not through a system of compulsory federal taxation or control."

6. The Board of Trustees announced that the Campaign Directors and Coordinating Committee will notify all state and county medical societies their decisions regarding our programs against governmental socialized medicine at the time, or immediately after the National Conference on Medical Service, scheduled for its meeting in Chicago in early February, 1950. The Board also announced the formation of an Inter-Association Committee on Health, whose function will be to consider all current problems relating to health and health care. This Committee is composed of three representatives from the A.M.A. American Dental Association, American Hospital Association, American Nurses Association, American Public Health Association, and the American Public Welfare Association.

7. The House ratified the revised essentials for acceptable Schools of Occupational Therapy, Physical Therapy, Schools of Medical Technologists, and of Medical Record Librarians, as presented by the Council on Medical Education and Hospitals.

8. The House adopted a resolution approving the creation of State and Local County Medical Society Grievance Committees, for the purpose of hearing complaints and adjudicating factual or imaginary injustices on the part of the laity against physicians.

It directed the Board of Trustees to make appropriate studies for the creation of a Junior American Medical Association, and to report at the next meeting of the House. This organization will include medical students, internes, residents and others not in actual practice.

The House adopted a resolution encouraging all hospitals to establish a section on General Practice.

It adopted another resolution relating to payment of decent salaries for full time public health officials, such salaries to be commensurate with their responsibilities, cost of living expenses, and based upon salaries paid for officials in similar positions.

Another resolution adopted encouraged the Council on Medical Service, through its Correlating Committee on Maternal and Child Health

to assist the American Legion, in cooperation with other health agencies, to assist in the development of a program for improved child health based on Community Action.

The House authorized the appointment of a committee of lay persons to help in the National Education Campaign.

A resolution was presented to the House of Delegates from Tennessee relative to the status of veterans with non-service connected illnesses. Much debate was had before the Reference Committee and the House on this subject. Its ramifications are so varied, and since many organizations are legally, as well as morally bound up in this problem, including the Governmental Medical Services, the Veterans Administration, various veterans organizations, and the Hoover Report, no definite establishment of policy could be formulated. The House, however, did instruct the Speaker of the House to appoint a committee of five to study the whole problem of medical care of the veteran with non-service connected disability, and report at the next session.

This report does not constitute a complete list of all the activities of the House. A complete summary of the minutes will be found in the Journal of the A.M.A. issues of December 17, 24, and 31, 1949.

Respectfully submitted,
J. D. HAMER, M. D.,
Phoenix, Arizona
December 23, 1949.

RULES OF THE BOARD OF SUPERVISORS OF THE COLORADO STATE MEDICAL SOCIETY

1. **PURPOSES OF THE BOARD:**
   a. To act as the Society's "grand jury" for investigating complaints and/or initiating investigations concerning professional conduct and ethical deportment.
   b. To prepare, for issuance to the entire membership in bulletin form through the executive office, periodic bulletins on ethical deportment containing definite educational advice to physicians in this regard.
   c. To initiate and prosecute, just as would a grand jury in civil procedures, charges against any physician deemed by the Board guilty of unprofessional conduct. These charges may, in the discretion and judgment of the Board, be filed originally with the Board of Censors of any component society, direct with the Councilor of the appropriate district of the State Society, direct with the Board of Councilors of the State Society, direct with the State Board of Medical Examiners, or direct with any criminal court, according to the nature of the charges.
   d. By way of further definition, it should be understood that the Board of Supervisors has no final jurisdiction in a judicial way. Just as would a grand jury, it will receive and pass its own judgment upon evidence, but it will not assume authority to discipline any physician. It may at any time express its advice to a member of the Society on any matter pertaining to professional conduct.
   e. In pursuance of its function as a grand jury within the structure of the Society the Board shall have the power and authority to summon members of the Society to appear before it, either in connection with complaints involving the members summoned or as witnesses in cases involving other members. In case any member shall fail to respond to such summons, the Board of Supervisors shall cite the member before the Board of Councilors for contempt proceedings.
2. **Standards of conduct.** The current edition of the "Principles of Medical Ethics of the American Medical Association", as interpreted from time to time by the Board of Councilors of the Colorado State Medical Society for this state, shall be the final standard by which all professional conduct and ethical deportment are determined.
3. **Organization of Board.** The Board annually elects a chairman, a vice-chairman, and a secretary from among its own members. The By-Laws of the Society do not permit any member of the Board to participate in the deliberation of questions concerning the conduct of a physician residing in the jurisdiction of that Board member's component society. In view of this fact the Vice-Chairman will preside in all cases involving a member of the Chairman's district, and the Vice-Chairman will serve as Secretary in all cases involving a member of the Secretary's district. Thus, two disinterested officers of the board will always assume these functions. Any person against whom an accusation is made will be informed that the member of the Board residing in his district will not be present during the Board's deliberation of that case. However, if the accused is willing, the Acting Chairman of the Board may, on occasion, instruct the Board member in the accused's district to undertake preliminary investigation, obtain information, and report to the Board, in order to expedite proceedings and eliminate unnecessary travel.
4. **Professional and Technical Assistance:**
   a. Unless in a given case the Board determines that verbatim testimony should be taken, no person other than elected members of the Board and any witness then being heard will be admitted to any part of its proceedings when a complaint is being considered.

b. Should it become necessary in the opinion of the Board to take verbatim testimony in any case the Board will obtain the service of a certified shorthand reporter licensed by the State of Colorado for such purposes. No regular employe of the Society will be requested or permitted to take notes or minutes on such matters.

c. In the event the Board reaches the point, in any investigation, where the Board feels it should file and prosecute charges against a physician before any judicial body the Board will, before filing such charges, consult with the regular retained attorney of the State Society to determine the sufficiency of the evidence.

5. General Procedure:

a. The Board will receive complaints either verbally or in writing from any person, whether or not he or she be a physician, a member of the Society, an employe of the Society, a patient of a physician, or any other person, lay or professional.

b. The Board will respect the completely confidential nature of any complaint, provided that any complainant unwilling to appear personally before the Board will be given to understand that such unwillingness prejudices against the possibility of the Board being able to make a complete investigation. Every complainant will be invited to appear before the Board with the assurance that even the fact of his appearance before the Board, as well as the origin of the complaint, will be kept confidential; provided however, that should any form of prosecution result the Board will of necessity reveal the names of prospective witnesses; even though these names may include that of the complainant.

c. The Secretary of the Board will acknowledge receipt of all complaints, either verbally or in writing as the circumstances of each case indicate to be wiser. The Secretary will likewise, in consultation with the Chairman, arrange for meetings of the Board with such frequency as may be necessary so that investigation of each complaint is carried out with reasonable dispatch, and will notify complainants and any other persons whom the Board wishes to interview concerning meeting dates and places. The Secretary will, at all times, keep the Chairman informed concerning the progress of investigations conducted otherwise than at meetings of the Board.

d. The Chairman, on receipt of information from the Secretary concerning each new complaint, shall determine whether first investigation or action on the complaint should be by the whole Board at a meeting or by one or more members of the Board individually. In most cases the Chairman will designate one or two members of the Board who are not residents of the same district as the physician being complained against to undertake a preliminary informal investigation, bearing in mind the confidential nature of such investigations.

e. When an informal investigation like that referred to next above has convinced at least two members of the Board (not including the member in whose district the physician under investigation resides) that no disciplinary action is indicated and that both the complainant and the physician involved are willing to accept the advice of the Board for reconciliation of the complaint, the advice and suggestions of the Board shall be reduced to writing and supplied to both complainant and the physician concerned, over the signature of the acting Chairman.

f. When an informal investigation like that referred to in "d" above convinces any disinterested member of the Board that disciplinary action is indicated, the entire Board except the member whose district is involved shall consider the matter formally in meeting before further action is taken, and further action shall be determined by majority vote of those present.

g. When, after investigation and attempts to effect amicable settlement, the Board is unable to reconcile differences over fees charged by a member of the Society, the Board shall by a majority vote determine the fee which it deems fair and proper. In case the Society member shall agree to the amount so fixed and shall fail to abide by his agreement, the Board of Supervisors shall cite such member before the Board of Councilors for contempt proceedings. Failure of the member to agree to such determination of the Board of Supervisors shall constitute grounds for the preferring of charges of unprofessional conduct under the principles of ethics.

h. Whenever the Board determines to file charges against a member of the Society with either a Board of Censors or the Board of Councilors, the charges shall be reduced to writing and filed over the signature of two officers of the Board and over the typed signatures of all other members of the Board who have taken part in the proceedings.

In the event that, in consideration of a case involving complaint against a physician who is not a member of the Medical

Society, it is determined that disciplinary charges should be filed against the doctor with a Board of Censors or the Board of Councilors were he a member of the Society, but it is also determined that the evidence does not justify proceedings before the State Board of Medical Examiners or a criminal court, the Board shall reduce its findings to writing, and subject to advice of legal counsel, shall notify the physician concerned of its findings and shall file a copy of this notice with the executive office of the State Society and the Secretary of the State Board of Medical Examiners for future reference.

i. Both the original complainant and the physician against whom the complaint has been made will be furnished with a written statement and explanation of the final decision of the Board as soon as possible after the Board has completed its investigation of the case, whether (1) the Board considers the case closed or (2) decides to file charges with a judicial body.

j. Immediately after each meeting of the whole Board, the officers of the Board shall prepare and deliver to the executive office of the Society, a memorandum suitable for inclusion in the monthly News Exchange, concerning any non-secret actions taken or general advice arrived at concerning the status of ethical deportment within the Society. In the event it is desired that such material be made the subject of a special bulletin to the entire membership of the Society, the Board shall make this decision known to the Executive Secretary.

k. Whenever the Board determines that contemplated actions of the Board, other than bulletin services indicated next above, will require use of certified shorthand reporters, telegraph or long distance telephone service, travel expense, or other matters involving State Society finances aside from routine services of the executive office, the Board will notify the Board of Trustees of the Society through the Executive Secretary, and estimate the financial requirements of the action then contemplated.

l. Officers of the Board shall keep appropriate and sufficient records of all of its final actions, other than confidential matters, and shall prepare quarterly reports of progress to the Board of Trustees and an annual report and recommendations to the House of Delegates.

m. Until further notice, the Board will meet regularly at 2:00 p.m., on the last Saturday of each calendar month in the Executive Office of the Society, subject to the privilege of the Chairman to postpone any such meeting if the date is impractical.

. . . As revised by the Board of Supervisors in meeting August 27, 1949

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CONGRESSIONAL RECORD — March 11, 1949 — A1470

TEN-YEAR NAVAJO PROGRAM

Extension of Remarks of
HON. HAROLD A. PATTEN
of Arizona, in the House of Representatives

Friday, March 11, 1949

MR. PATTEN: Mr. Speaker, only through substantial improvement in their lot can any lasting benefits be given to the Navajo Indians. The 10-year program to build schools, to construct roads, to improve the lands of the Navajo Reservation, and to provide reservation businesses and encourage off-the-reservation employment and settlement is the first requirement. I join the President in pressing for hearings and favorable action on the Navajo program.

I include here the announcement by the Interior Department regarding the Navajo rehabilitation program:

Department of the Interior, Information Service, Office of the Secretary

10-Year Navajo Program Resubmitted to Congress

Acting on direction of President Truman, a 10-year program for the rehabilitation of the Navajo and Hopi Indian Tribes was resubmitted to Congress today by Secretary of the Interior J. A. Krug.

"The United States," President Truman wrote in his instructions to Secretary Krug, "which would live on Christian principles with all of the peoples of the world, cannot omit a fair deal for its own Indian citizens."

The program, similar to the one submitted to Congress last year and upon which no action was taken, except for a minor grant, calls for the expenditure of $90,000,000 for capital investments on the reservations.

"At my request," the President wrote, "you prepared and presented to the Congress on March 15, 1948, a proposed 10-year program for the rehabilitation of the Navajo and Hopi Indians of Arizona and New Mexico. Except for one small segment of this program, the Eightieth Congress failed to enact the necessary legislative authority to place it in motion.

"The needs of those Indians are as great today as they were a year ago. Indeed, the severe winter storms have emphasized the serious economic conditions prevailing among these tribes. The authorization of this long-range program is considered essential to enable these groups of Indians to become healthy, enlightened, and self-supporting. I hope you will continue to emphasize to the Congress the needs of the Navajos and Hopis."

A draft of a bill designed to accomplish the purpose of the long-range program is made part of the report sent to the Congress.

Similar in most respects to the 1948 program, except for wider benefits to the Hopis, the program provides for the expenditure of $25,000,000 for the construction of school buildings, the purchase of equipment and for other educational improvements on the reservation. An additional $20,000,000 is sought for the construction of roads and trails.

The Secretary's proposals for carrying out the program are summarized as follows:

Purpose of expenditure and amount needed—

1. Soil and water conservation and range improvement	$10,000,000
2. Completion and extension of existing irrigation projects	9,000,000
3. Surveys and studies of timber, coal, mineral, and other physical and human resources	800,000
4. Development of community enterprises and industries	1,500,000
5. Relocation and resettlement of Colorado River Indian Reservation	5,750,000
6. Development of opportunities for off-reservation employment and assistance in adjustments related to such employment	3,500,000
7. Hospital buildings and equipment and other health conservation measures	4,750,000
8. School buildings and equipment and other education measures	25,000,000
9. Establishment of a revolving loan fund	5,000,000
10. Construction of roads and trails	20,000,000
11. Construction of air transport facilities	1,000,000
12. Telephone and radio communication systems	500,000
13. Agency and institutional water supply and other service facilities	3,500,000
Total	$90,000,000

The 1948 report was based on information secured over many years including four separate studies which were initiated by Secretary Krug in 1947 and 1948. These surveys made by Department of the Interior experts, prominent ed-

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ucators and representatives of the American Medical Association, cover most phases of the problem of the Indians.

The report declares that education is one of the important and probably the most difficult aspect of the entire problem.

The ultimate educational goal is to provide school facilities for all of the 24,000 Navajo children, between the ages of 6 and 18 years. At present there are facilities for only 7,500 children, of which 6,500 are accommodated in Government schools and 1,000 in mission schools. It is recommended that plans be immediately launched for the expansion and repair of eight existing reservation schools and that two additional boarding schools on the reservation will be built. Other improvements contemplated in the program are the conversion of 17 day schools to semi-boarding schools and the enlargement or conversion of 33 day schools. Also recommended is the increased use by Navajos of existing off-reservation boarding schools and the use of the schools at the Colorado River Indian Reservation. mhese measures will increase total school capacity to 13,290 seats.

Construction of 636 miles of primary and 638 miles of secondary roads is of fundamental importance to the program. The primary system will provide transportation service to the chief centers of population and to main school, hospital, and business locations. The primary roads will connect with State roads off the reservations. The secondary system will provide transportation to areas which cannot be served by the primary system.

Improvement and development of reservation resources, which include range, soil, and moisture conservation measures, are included in the program. Included also are extensions of irrigation systems, surveys of timber and minerals, development of arts and crafts and community enterprises and industries.

Resource development and utilization and off-reservation employment can be expected to contribute to the support of only 6,950 families out of the 12,000 families on the reservation. The remaining 5,050 families must find some other means of earning a living, the report points out. Some progress has been made in the off-reservation settlement, but it is proposed that 1,000 families resettle on the Colorado River reservation, which has excellent soil suitable for farming. Additional development on the Shiprock-San Juan irrigation project is designed to provide a living for an additional 2,600 families. However, the report points out that the balance of 1,450 families must look to off-reservation employment and resettlement.

The Shiprock-San Juan project, it is pointed out, will provide a livelihood for the greatest number of Navajo families. The proposed area recommended comprises 117,000 acres, of which 115,000 acres are tribal lands and approximately 2,000 acres non-Indian lands.

RESOLUTION

At the Atlantic City Session of the House of Delegates of the American Medical Association the following resolution presented by Dr. William Weston, delegate of the Section on Pediatrics, was adopted:

Whereas, The Academy of Pediatrics has a particular interest in the field of child health; and

Whereas, It is recognized that certain deficiencies exist in this field; and

Whereas, It is desirable that definite programs be set up on the state and local level to correct these deficiencies where they exist; and

Whereas, The Academy of Pediatrics has gone on record as opposed to Senate Bill 5, or any similar bill proposing to establish a system of socialized medicine; therefore be it

RESOLVED, That the American Medical Association favors the development of sound child health programs on the state and local level by pediatric groups working in cooperation with the several state medical associations and local component county societies and in conformity with the Principles of Medical Ethics as laid down by the American Medical Association.

At the suggestion of a member of the American Medical Association's Liaison Committee with the American Academy of Pediatrics, this resolution is being distributed to all constituent associations for such implementation as may be possible.

Income Taxes and the Doctor

(EDITOR'S NOTE: The following article on income tax matters of current interest to readers of Arizona Medicine was prepared by members of the Arizona Society of Certified Public Accountants and contributed by the Society as a public service.)

A continuous stream of Treasury Department decisions and instructions make it necessary that the members of the medical profession keep before them constantly the question of income tax, its reasons, its methods of computation, and the proper deduction of allowable expenses.

Treasury Department rulings in setting up definitions of allowable business deductions tend to reduce rather than increase the amounts which can be deducted from gross income before arriving at the net taxable income. The Treasury Department, through the Bureau of Internal Revenue, has recently employed several thousand

additional field workers for the purpose of making spot checks of returns filed by all classes of taxpayers. In the past only those returns which showed some miscalculation of tax, some incorrect statement of income or expense, or which contained items which appeared questionable have been examined by a check of the books and records of the taxpayer for the period covered by the return. The new method of spot checking involves the selection of returns at random regardless of size, tax liability, or source of income. This spot check has proved of much value to the Treasury Department, and agents have found discrepancies in many returns due to both intentional and unintentional oversight of income, and to deductions in amounts that cannot be substantiated by the books of the taxpayer or his records of disbursements verified by cancelled checks or paid statements. The additional taxes obtained under this program have encouraged the placing of several thousand new field men throughout the United States for the next year to check more closely the returns filed not necessarily by the large corporation, the large taxpayer, or the business man, but by all persons and organizations which should report all income received.

Several items which the medical profession should give careful consideration are; *First:* A complete record of all cash received, the name and address from whom received even though the patient pays cash at the time of treatment and no bill is rendered. The medical expense deduction allowed during the past few years makes the doctor's records a source of verification of medical bills paid as reported by the taxpayer and makes it mandatory that a complete record of patients' payments be kept.

Second: A complete record of payment of expense incidental to the practice of medicine include such items as rent, salaries, medical and surgical supplies, telephone, telegraph, postage, office supplies, laboratory expense and so forth must be kept. These expenses should be paid in such a manner as to furnish the payer with cancelled check or receipt marked "Paid."

Third: Automobile expense should be carefully defined so that no question may arise as to its use in business. Personal use of the car by the doctor or his family does not constitute a deductible expense.

Fourth: Professional entertainment is allowable only to the extent that it is incidental to the operation of a professional practice and varies in amount and type when deducted by medical doctors who do general or specialized work. It is suggested that the items considered by the doctor to be professional expense be enumerated daily or immediately after such expense is incurred or paid so that any deduction claimed can be substantiated. The Department of Internal Revenue is becoming more cautious in its view of professional entertainment as a deduction and is requesting more information as to its professional necessity.

Fifth: Travel expense to conventions and for business purposes should be carefully watched so that the amounts deducted for this item can be itemized and thereby substantiated should the need arise. Any expense for post-graduate work is not a deductible item.

Sixth: A reasonable deduction for depreciation on the equipment including office furniture and fixtures, library, automobiles when used on business, and instruments, is acceptable to the Treasury Department. This depreciation is to be based on the estimated life of the item considered. Most small instruments and medical supplies usually are charged off immediately as an expense at time of purchase.

Seventh: Bear in mind that deductions against income are allowable only to the extent that they can be substantiated by actual disbursements, and that there is no fixed amount allowed or any percentage of income accepted as a reasonable amount.

It is the intent of this article to impress upon the medical profession the necessity of keeping accurate and complete records of all items of income from practice, substantiated by individual records of sources. All expenses should be so recorded that immediate explanation can be made to the agent who may be assigned to check your return.

Complete records regularly checked by a Certified Public Accountant are the doctor's best assurance that his current transactions are being properly recorded and that his payments are the minimum required for full compliance with the income tax laws.

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WOMAN'S AUXILIARY



MRS. DONALD B. LEWIS

President Pima County Medical Society

Mrs. Donald Lewis is a native of York, Penna. She is an R. N. from The University of Pennsylvania Hospital in Philadelphia, and after graduation worked there as Medical Supervisor.

While in training she met Dr. Lewis, who was then a medical student at The University of Pennsylvania. The Lewis' have two children—Diane and Donald.

While Dr. Lewis was in service, Mrs. Lewis worked as an Anesthetist in the Tucson Hospitals. Mrs. Lewis has held various offices during the past twelve years in the Pima County Medical Auxiliary.

Dr. Lewis specializes in Urology.

PIMA COUNTY AUXILIARY

The monthly meeting of the Pima County Medical Auxiliary was held Tuesday night in the Blue Room at the Santa Rita Hotel.

Miss Agnes Link of Flowerland gave an interesting discussion on the arrangement of Christmas greens and demonstrated several beautiful floral arrangements for the holidays.

The members of the Auxiliary were asked to assist in the donation of soap for the KTUC Volunteer Soap Drive for Trikkala, Greece.

Mrs. Donald Lewis, President, also announced that a donor recruitment chairman would be selected to outline a Blood Donor Program for the Auxiliary in conjunction with the American Red Cross Blood Center.

Hostesses for the refreshments were: Mmes. H. D. Cogswell, Chairman; H. C. James, J. K. Bennett, B. B. Edwards, Ed J. Gotthelf, Robert Hastings, Leo J. Kent, J. L. Donahue, C. A. Stephens, J. L. Whitehill, Michael Bernfeld and Raymond Bock.

ACTIVITIES OF THE MONTH

The Pima County Medical Auxiliary assisted in the collection of toys for Trikkala, Greece, Tucson's adopted city. Mrs. Howard Douds, chairman of the committee, was assisted by Mmes. Harold Kosanke, Ed J. Gotthelf, James W. Davis, Richard K. Hausmann, George Fraser, E. R. Baldwin, J. M. Sickler, George Shetter, W. S. Kitt, J. H. Woodard, B. W. Saylor and Donald Lewis.

The Pima County Medical Auxiliary assisted the Pima County Tuberculosis and Health Association in the sale of Christmas Seals at the Valley National Bank during the week of December 5 to 10. Mrs. J. M. Sickler was appointed general chairman. The following members assisted in the sale: Mmes. J. M. Kinkade, Donald Lewis, George Shetter, George Fraser, D. L. Secrist, Maxwell Palmer, D. E. Engle, and Max Costin.

1949 CONFERENCE REPORT

The report of Mrs. Benjamin Herzberg, President-elect Woman's Auxiliary to the Arizona State Medical Society, on the 1949 Conference of State Presidents and Presidents-elect, and National chairmen of standing committees, at Hotel LaSalle, Chicago, Illinois, November 3rd and 4th, 1949.

The sixth annual conference of State Presidents and Presidents-elect and the National Board of the Woman's Auxiliary to the American Medical Association, convened in Chicago, November 3rd and 4th. The theme of the conference was the "A.M.A. Twelve Point Program," and the purpose, to bring together the above mentioned group so that auxiliary problems could be discussed and advice given by the National committee chairmen. The only social

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aspect of the meeting was the opportunity to know other auxiliary officers and to meet the National Board.

Your National Board is comprised of a group of intelligent, enthusiastic and sincere women, who realize the importance of their work and do it in a most commendable fashion. They digest volumes of material and bring to us the vital information we need to function on a State level. The following are some of the highlights of the National reports.

1. It is necessary for every Auxiliary member to subscribe to the bulletin and not only subscribe, but read and digest its contents. It is the official publication of the organization and keeps members informed on all activities. A complete summary of the conference will be published in the next issue.

2. We must purchase and encourage the sale of Hygeia. Not only does it print authentic heath information, but it is a means toward good public relations.

3. Auxiliaries should be organized wherever possible, membership increased and members at large activated.

4. It is essential that we know and understand the A.M.A. Twelve Point Program, with a speaking knowledge of the tenets thereof, not just a reading knowledge. At all times, we must encourage the promotion of voluntary health insurance plans.

5. City and County health programs should be of vital interest to all. It, too, is an excellent means toward good public relations.

6. Cooperate with your legislative chairman by writing to your congressman or representative when requested so to do, and follow through with a note of thanks for anything helpful they may do. They should be kept informed of our position at all times.

The first day's activities were interspersed with a number of interesting speakers. Dr. Andrew C. Ivy, Vice-President of the University of Illinois Professional Schools, stressed the need to continue the "doctor-patient relationship", which, if shared by a third party, would lead to medical deterioration and the loss of the democratic way of life in due time; that we have rights as individuals and we cannot permit ourselves to become controlled by a third party.

Fred V. Hein, Ph. D., Consultant in Health and Fitness of the A.M.A., explained the need of the school health program in that we have an obligation to help parents improve the health of their children. and that it can be the most fruitful source of public relations that is open to us. He urged that the Auxiliaries be encouraged to do everything possible to assist their medical societies in this regard.

Mr. Lawrence Rember, Director of the Department of Public Relations of the A.M.A., asked that we help to get effective endorsement drives among women's organizations, participate in the work of the medical society bureaus, and have a well organized literature distribution system.

Mrs. Charles Sewell, Administrative Director, Associated Women of American Farm Bureau, was a most interesting and dynamic person. She gave us an insight into the problems of rural health, the need, not only for doctors, but for proper medical facilities to encourage the doctors to stay in the rural areas. She stated that one of the first problems to come before the farm bureau groups was that of rural medical care. Her closing remark, and a very fit one, was "the good accomplished and the work done is measured by the worthwhileness of the cause."

The discussion of Auxiliary activities by State Presidents was eliminated from the agenda. It was recommended that the time be given to discussion of the national reports and of individual problems. Each president was asked to submit her report, in writing, for the purpose of the bulletin.

A number of states have their own auxiliary publications and find it a most effective means of keeping all county auxiliaries informed and of maintaining a more personal contact with members. There was much discussion concerning the state medical associations paying dues for all wives. The state of Oregon found it a most successful way of organizing—others felt it did not encourage active and interested members. However, it is the problem of the state as each in an organization unto itself.

Others speakers were Dr. Ernest E. Irons, Dr. J. J. Moore, and Dr. Louis Bauer, President, Treasurer and Chairman of the Board of Trustees of the A.M.A. respectively. All stressed the need for good public relations, to be properly informed, interest in public health programs and the ability to disseminate authentic and approved information.

Dr. James R. Miller, member of the Board of Trustees of the A.M.A. spoke on the Commission on Chronic Illness. Dr. Miller is chairman of the Commission, and the subject of chronic illness is one of the provisions in the Twelve Point Program. The purpose of the Commission, in part, is designed to help prevent chronic illness, as far as possible; to minimize its disabling effects and to restore its victims to a socially useful and economically productive place in the community; to stimulate in every state and locality a well-rounded plan for the prevention and control of chronic disease and for the care and rehabilitation of the chronically ill.

Not only was it a personal privilege and pleasure to attend the conference, but it was most enlightening and inspiring. There is so much for auxiliary members to do, and without delay, for as the National Legislative Chairman so aptly stated, "it is later than we think." This is a

nation-wide problem, not only that of the doctor, for to permit Federal control of anything as vital as public health is the beginning of the end of the American way of life as we know and enjoy it. American medicine must be kept free of politics and to keep it that way means that we cannot permit ourselves the luxury of indifference or apathy. It is a challenge we cannot ignore and we must fight it with knowledge and patience.



MRS. CYRIL M. CRON

Mrs. Cyril M. Cron is President of the Woman's Auxiliary to the Gila County Medical Society. She was born in New York and attended schools in New York and Arizona.

Mrs. Cron is a Board Member of the Miami Public Library; Chairman of the Red Cross Mobile Blood Unit, and immediate past-president of the Miami Library Club.

Her hobbies are traveling, collecting rare books and an interest in Art.

She is married to Dr. Cyril M. Cron, Physician and Surgeon of Miami, Arizona.

Mid-Winter Radiological Conference

The Second Annual Mid-Winter Radiological Conference, sponsored by the Los Angeles Radiological Society will be held at the Biltmore Hotel on February 25 and 26 of 1950. Non-radiological colleagues interested in any of the courses are, of course, invited to attend. The cost for the entire two-day session is $15. A banquet will be held on Saturday evening, February 25, at which Dr. Juan A. del Regato will deliver an address on "Transvaginal Roentgen Therapy for Carcinoma of the Cervix." The charge for the banquet is $5. Reservations for the meeting and banquet should be accompanied by a check for $20, and sent to Dr. Moris Horwitz, 441 North Camden Drive, Beverly Hills, California. Hotel reservations may be made by applying directly to the convention manager of the Biltmore Hotel, Los Angeles. Early reservations are suggested since accommodations are limited.

The program is as follows:

Saturday, February 25, 1950

10:15 A.M. Address of Welcome—
Dr. William Costolow, President,
Los Angeles County Medical Assn.

10:30 A.M. Dr. George Griffith, Pasadena, Calif.
"The Roentgen Treatment of Hypertension."

11:00 A.M. Dr. Robert Pugh, Pasadena, Calif.
"Pitfalls of Radiation Protection."

11:30 A.M. Dr. Ray A. Carter, Los Angeles, Calif.
"Roentgen of Manifestations of Certain Granulomatous Lesions of the Lungs."

2:00 P.M. Dr. Gordon G. King, San Francisco, California
"Similar Anomalies and Dystrophies in Infants and Young Children."

2:45 P.M. Dr. Marcy Sussman, Phoenix, Arizona
"Newer Diagnostic Methods in Difficult Congenital Cardiac Cases."

3:30 P.M. Dr. Samuel Perzik, Beverly Hills, California
"Surgical Management of Post-Irradiation Complications of the Larynx."

4:15 P.M. Dr. Ian MacDonald, Los Angeles, Calif.
"The Use and Abuse of Hormone Therapy in the Treatment of Cancer."

6:00 P.M. Cocktails. (Compliments of the X-ray and Radium Equipment Manufacturers and Suppliers of Los Angeles.)

7:00 P.M. Banquet. Master of Ceremonies—
Dr. Lowell Goin
Speaker: Dr. Juan A. del Regato
"Transvaginal Roentgen Therapy for Carcinoma of the Cervix."

Sunday, February 26, 1950

9:30 A.M. Dr. Marcy Sussman, Phoenix, Arizona
"Granulomatous Diseases of the Small Bowel."

10:15 A.M. Dr. Henry Kaplan, San Francisco, California.
"Roentgen Examination of the Colon."

11:00 A.M. Dr. Earl R. Miller, San Francisco, California
"Radio-active Iodine in Medicine."

2:00 P.M. Dr. Juan A. del Regato, Colorado Springs, Colorado
"Roentgen Therapy of Carcinoma of the Lip."

3:00 P.M. Dr. Henry C. Crozier, Los Angeles, California
"Myelography: A Review of 453 Consecutive Cases."

Arizona Blue Shield Blue Cross

ARIZONA BLUE SHIELD HAS BIRTHDAY — NOW TWO YEARS OLD

October and November were birthday months for Arizona's voluntary, non-profit community-sponsored health plans. Blue Cross observed its fifth birthday in October, appropriate ceremonies and the able assistance of Lawrence C. Wells, Manager of the Public Relations Division of the Blue Cross Commission.

Arizona Blue Shield had its birthday turn in November, when on the fifteenth it marked the end of its second year of operation. While no special observance was planned, the date did not pass without notice. It was publicized widely in the newspapers of the State and in such special publications as the Health Activities Bulletin; Arizona Medicine, the official journal of the Arizona Medical Association, and the Western Hospital News Letter.

At the end of October, the Arizona Blue Shield membership stood at 45,148. This represented an increase in ten months of 26 per cent over the 33,476 members on the rolls at the end of 1948. The October 31 membership was covered by 15,525 separate Blue Shield contracts for an average of 2.81 members per contract.

From its beginning through October of this year, Arizona Blue Shield had disbursed a total of $270,074.87 to physicians for the benefit of its members—$222,859.12 in the first ten months of the year. Total disbursements covered 3,625 cases, and of this number 2,708 were paid in 1949. The total number of maternity cases paid through September of this year (the last period for which figures were available as this was written) was 239. There were only 23 maternity cases paid in all of 1948 because of the fact that the Plan was new and a full nine-month waiting period is required of members for maternity eligibility.

Operating expenses for Arizona Blue Shield averaged 11.6 per cent for the first ten months of this year, as compared with the extremely low figure of 12.4 per cent for 1948's first year operations.

Arizona Blue Shield was instituted and financed by the Arizona Medical Association in recognition of the need for equitable distribution of adequate medical care at reasonable cost. The House of Delegates of the Arizona Medical Association is the corporate body of Arizona Blue Shield. At the latest count, more than 580 of the State's doctors of medicine were registered as Blue Shield Participating Physicians.

The Plan is governed by a Board of Directors which includes its four officers. The Board and the administrative staff are assisted by a Professional Committee and a Medical Director. Dr. E. Payne Palmer, Sr., of Phoenix, is President of Arizona Blue Shield. Other officers are: Dr. A. I. Podolsky, Yuma, Vice President; Mr. Earle Barrows, Phoenix, Treasurer, and Dr. Carlos C. Craig, Phoenix, Secretary. All officers have served since the inception of the Plan.

Other Directors are: Dr. E. A. Born, Prescott; Dr. Walter Brazie, Kingman; Dr. Royal Rudolph, Tucson; Mr. John Durkin, Tucson; Dr. W. Paul Holbrook, Tucson; Dr. Hal Rice, Bisbee; Mr. Richard C. Simis, Phoenix; Dr. Lytton-Smith, Phoenix; Mr. Steve Spear, Phoenix, and Dr. O. E. Utzinger, Ray.

Dr. H. D. Ketcherside of Phoenix is chairman of the Professional Committee. Other members are Dr. Joseph M. Greer, Phoenix; Dr. E. J. Hayden, Tucson; Dr. Clarence Warrenburg, Phoenix, and Dr. Harry T. Southworth, Prescott.

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Report of January Council Meeting

A routine meeting of the Council was held in Phoenix, January 15. Many routine matters pertaining to the Association were discussed and settled. Some major problems were also discussed.

The most important probably was the situation in Mohave County. At the October meeting of the Council a Committee consisting of the three past presidents, Doctors George Bassett of Prescott, Preston Brown of Phoenix and Harold Kohl of Tucson, was appointed to investigate the whole situation. The committee reported their findings. The Council unanimously approved of the action taken by the Mohave Medical Society and assured them financial aid in their legal action against the Mohave County Board of Supervisors. This means that the decision on November 1 by Judge H. L. Russell of Coconino County Superior Court, who ruled that the Board of Supervisors had the right to ban physicians from using the facilities of the Mohave County General Hospital, will be appealed to the Arizona Supreme Court.

Another important subject was the rising cost of medical care which has been experienced by the State Industrial Commission. Figures were presented to substantiate the facts. The month of March in 1947, 1948 and 1949 was selected as a comparable example. It was shown that in March of 1947, 1952 cases were handled by the Commission. In 1948, 2153 cases were handled and in March of 1949, 1994 cases. The changes in the fee schedule have not exceeded 2% increase. However, the following are a few figures to show the spiraling charges. In March of 1947 a total of $70,103 was paid out. In March of 1948, $94,118 was paid. In March of 1949, $138,161 was paid.

In March of 1947, $2,587.00 was paid for fractures. In March of 1948, $3,291.00 was paid. In March of 1949, $4,002.00. March of 1947, $425 was paid for physiotherapy. March of 1948, $2,381.00 was paid, and in March of 1949, $5,925.00 was paid.

This same ratio of expenses increased proportionately in all other charges including hospital, laboratory charges, house visits, office calls and consultations. The Council believes that this situation could be corrected. The Industrial Relations Committee held a meeting on January 8 at which time certain recommendations were made concerning the fee schedule, physiotherapy treatments and additional professional help in the Commission's Central Office. These recommendations were reviewed by the Council and fully approved.

Two matters pertaining to the State Hospital were also discussed. The State Hospital has experienced difficulty in obtaining competent medical personnel. It was recommended by the Council last year that physicians employed by state institutions not be required to have a state license and to have the same status as internes and residents in general hospitals. In order to adopt this recommendation the state law would have to be amended by the legislature. This would eliminate the necessity of physicians, employed by the state institutions, from taking the Basic Science Examination or having temporary licenses issued or taking the state board or going through the process of obtaining reciprocity. Inasmuch as these doctors would be practicing in the Hospital and would not have private patients outside of the Hospital, a state licensure would not be necessary.

A Sub-committee of the Professional Board made a survey of the Hospital last year and decided that the present procedure for commitment to the Hospital was archaic and recommended that the Michigan plan of commitment be adopted. To date nothing has been done about these recommendations. The Council reiterated their position on both of these matters.

The Alemeda County system of medical care and the Colorado Grievance Committee plan were discussed at length and a committee appointed to make recommendations at the next meeting of the Council.

Much routine matter pertaining to the Central Office was disposed of.

The Council was in session from 11:00 a. m. until 5:30 p. m.

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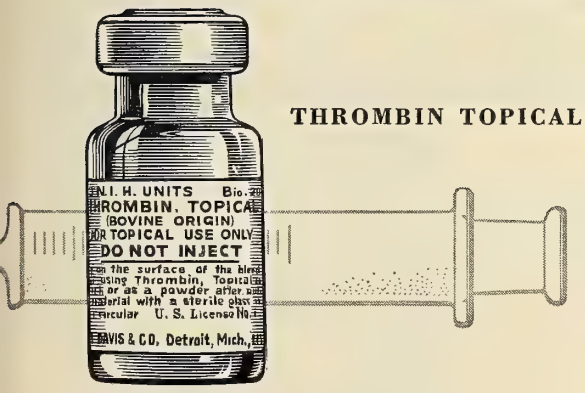
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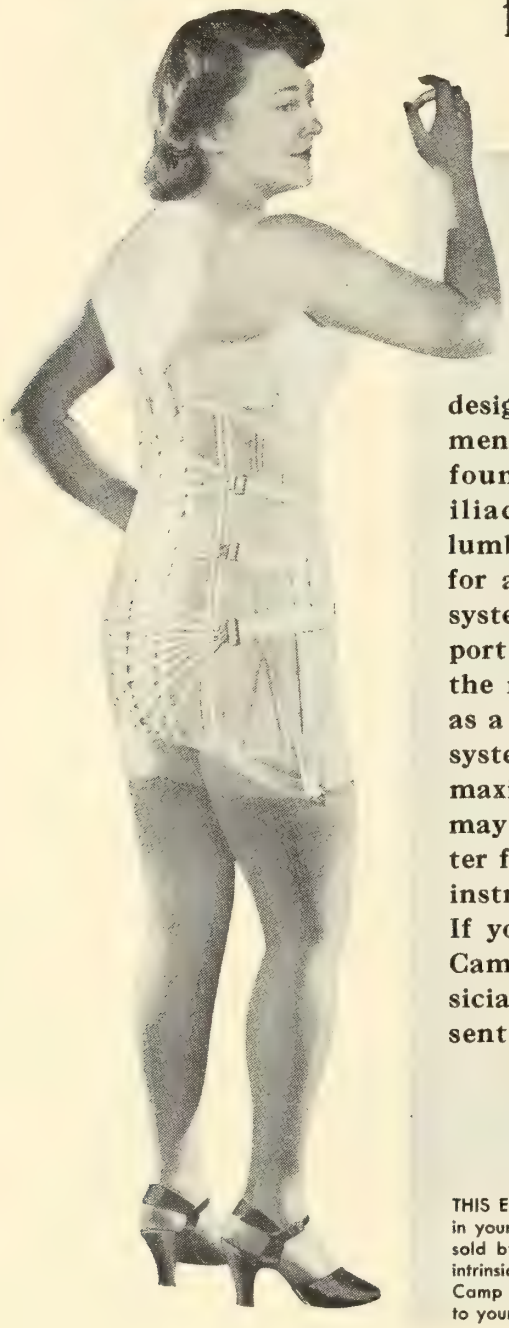
1. Brewer, A. A.: Radiology *48*:269, 1947.

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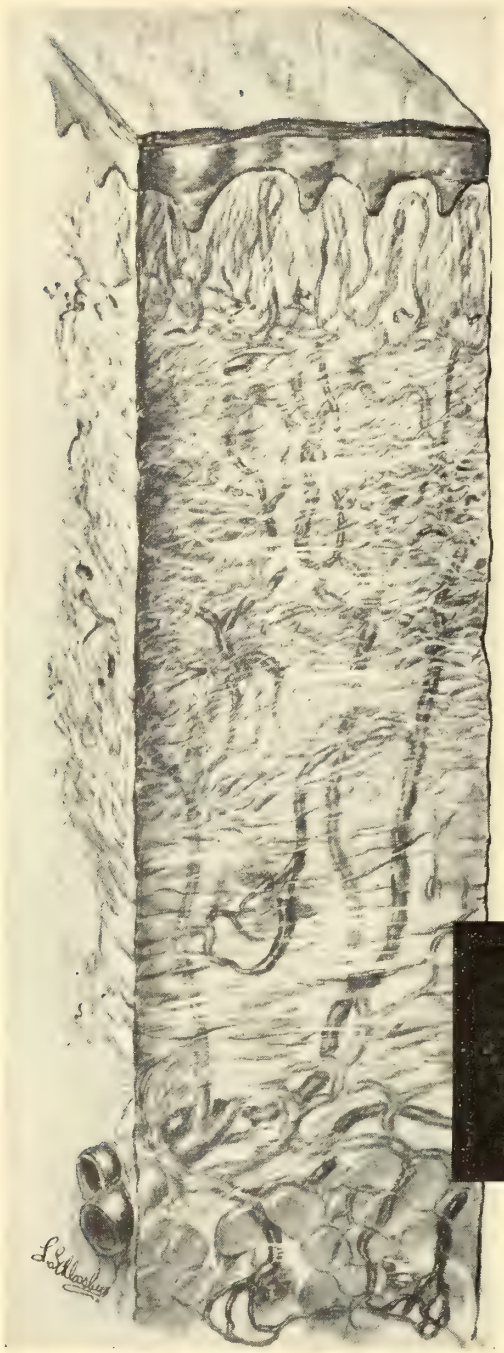
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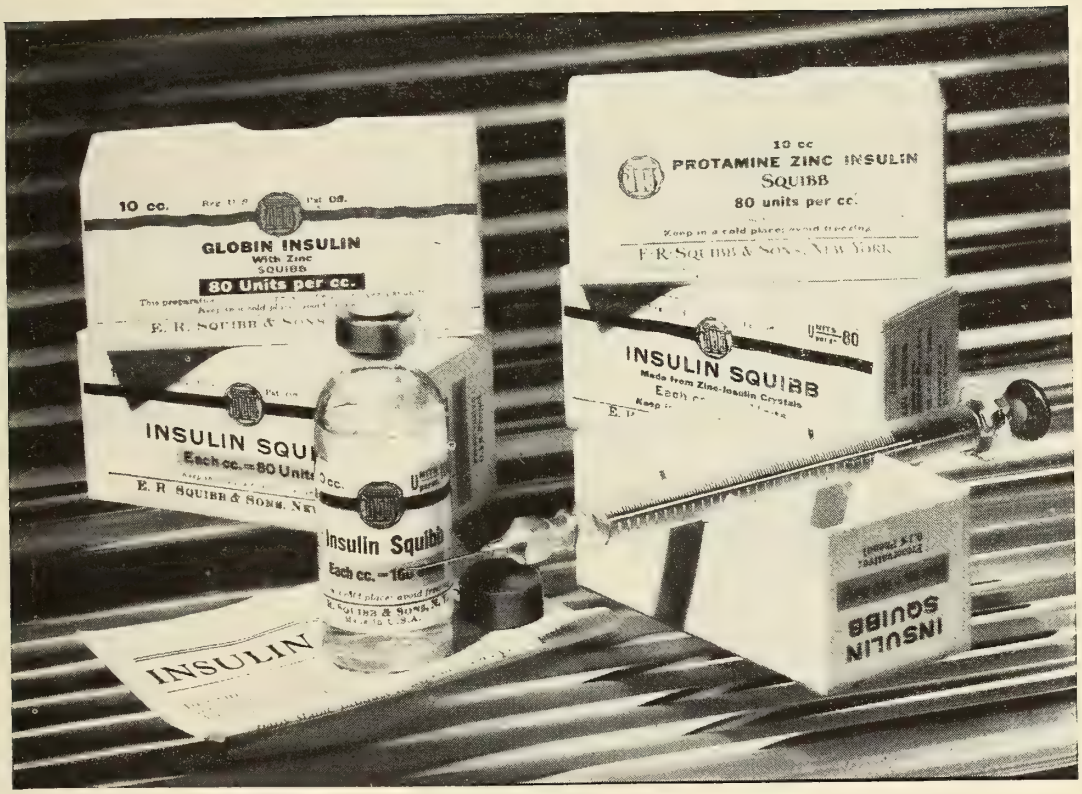
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Hamblen, E. C.: North Carolina M. J. 7:533 (Oct.) 1946.

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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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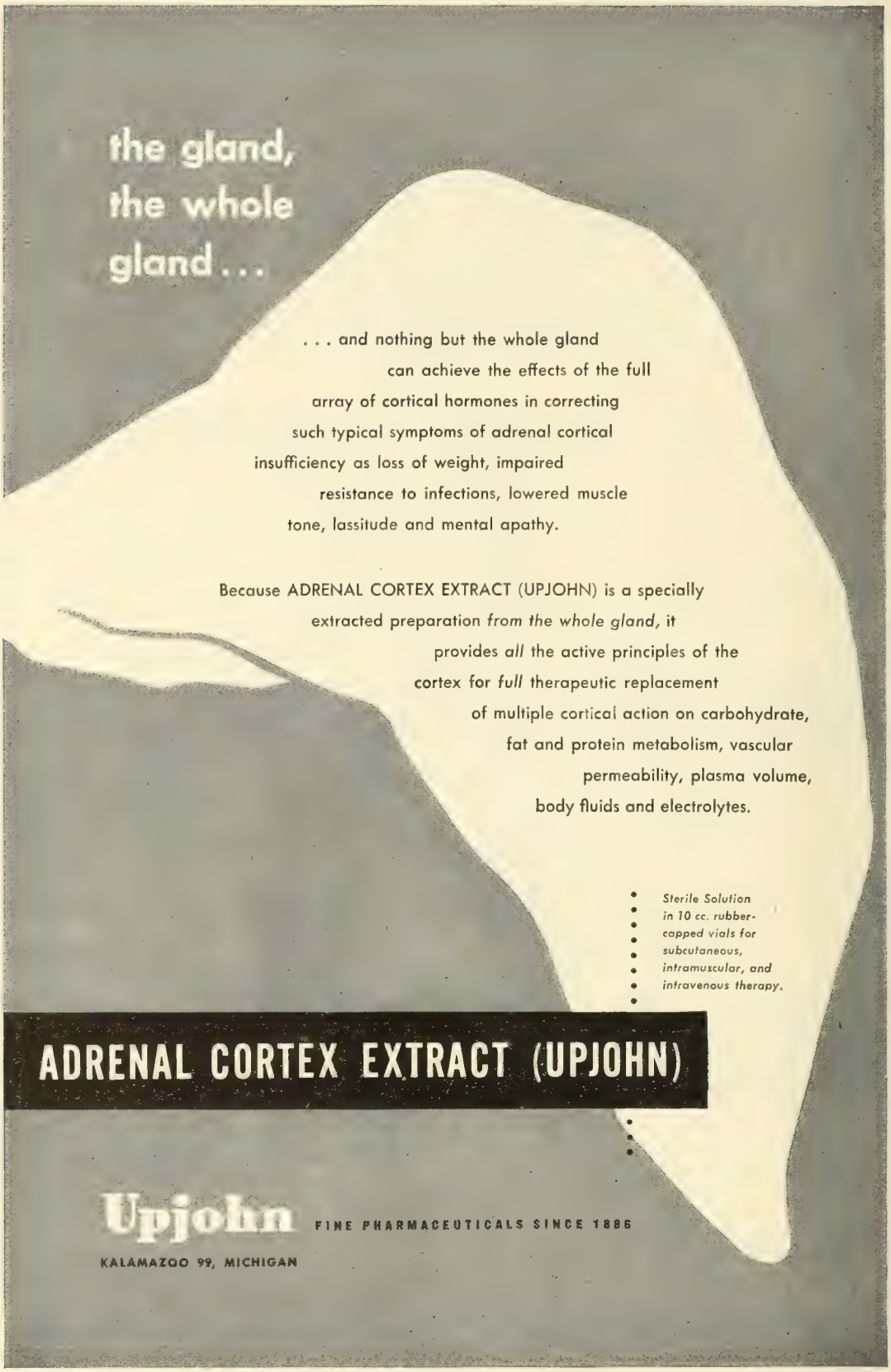
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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

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RADIATION SICKNESS

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F.A.C.P., F.A.C.R.
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THE timeliness and importance of this subject can be illustrated by three quotations. The first is from a statement authorized by the Council on Physical Medicine of the American Medical Association, and published in the Journal of the A. M. A., November 13, 1948. The statement comes from the Council's Consultation Committee on Roentgen Rays, Radium and Medical Aspects of Atomic Energy. One paragraph of the statement reads as follows:

"The atomic age confronts the medical profession with seemingly unlimited opportunities, but equally with the gravest responsibilities. To match the eagerness with which he plunges into the investigation of the tremendous possibilities of advance in medical knowledge, the physician investigator must possess the keenest awareness of the hazards to himself, his patients and working associates involved in the study and manipulation of radidoactive isotopes and other products of atomic fission. Fundamental is the fact that there is no antidote to radiation injury. Prevention and unrelenting watchfulness are the requirements for what may be called radiation hygiene. Even physicians who are not engaged in this research must have knowledge of the technics involved, for they may have patients who have been exposed to radiations."

The second quotation is from an editorial by Dr. Newell, Professor of Radiology at Stanford University Medical School, and one of the consultants to the A.M.A. Council. His editorial is a comment on their statement, reproduced in the American Roentgen Ray Journal, May, 1949. A paragraph from it reads:

"The making of the atom bomb was complicated by the most extraordinary health hazard that the world has ever known, insidious in the extreme, inappreciable to the senses, late to reveal the injuries produced and only to be detected by methods novel to the usual guardians of health—the physicians. The control of this hazard was the achievement of a unique cooperative effort by physicists, chemists and physicians, and the specific discipline developed received the name: Health Physics. On this is founded a special branch of Industrial Preventive Medicine which we can call Radiation Hygiene: the art of avoidance of injury by radiation machines and radioactive products.

"With the availability of radioactive isotopes for medical and industrial researches and ultimate wide application, the need for training in radiation hygiene is spreading to medical schools and hospitals and to research institutes and factories. Not only the industrial surgeon and radiologist must take this up, but *every* physician must learn its fundamentals."

The third quotation is a paragraph from Ladd's book, "Must We Hide?" urging on us the grave responsibilities of the medical profession, as we face the somewhat uncertain future of the atomic age. The paragraph in question reads:

"In the present age of medical specialization there are many physicians who are not skilled in recognizing the symptoms of radiation sickness and who are not familiar with the latest developments in treatment. These men must be kept informed of the latest results of research and the preferred methods of treatment recommended by leaders in the field. Fortunately the basic training of physicians is sufficiently broad to permit them to be indoctrinated with a minimum of effort. The American Medical Association will do well to note the burden that may be thrust upon its members and to consider means for rendering all possible assistance."

Any good sermonizer, having read the Scripture, will select a text, and this is to be found in

Presented before the Harlow Brooks Navajo Clinical Conference, Ganado, Arizona, August 22, 1949.

an article by Prosser and associates, on radiation intoxication, in Radiology for September, 1947. This text reads:

"Every kind of ionizing reaction is similar in its clinical aspects, whether it be from penetrating external radiation, or internal radiation from deposited material."

In other words, radiation sickness is the same, whether produced by x-rays, by injected radioactive isotopes of chemical elements, or by the gamma radiation from radium or atomic fission. Therefore, we can, and do apply what we have learned about roentgen ray sickness during the past fifty years to our study of and treatment of radiation sickness from any cause. To this end it will be instructive to review briefly the development of our knowledge of x-ray toxemia, this development being indicated roughly by its changing terminology through the years. Starting with Walsh's first report in 1897 on "toxic reactions from x-rays", the syndrome has been described under such names as: roentgen toxemia, roentgen intoxication, roentgen sickness, roentgen constitutional reactions, and now the more general and inclusive term RADIATION SICKNESSS, by whatever agent or in whatever manner produced.

We can conveniently study the development of this knowledge by dividing the period since the discovery of x-rays into five eras of approximately a decade each.

1895 - 1907. Constitutional reactions following x-ray treatments seem to have been first reported by Walsh of Germany in 1897, and during the succeeding years many observations were made by other workers regarding such systemic reactions. In this country, Edsall and his collaborators at the University of Pennsylvania wrote repeatedly on the subject. Their paper in March, 1907 (Amer. Jour. Med. Sci.) on "The Nature of the General Toxic Reaction Following Exposure to X-rays," cited three cases of severe systemic reactions, two of which were fatal. It is interesting to note that what happened to these two patients with pathological blood conditions accurately forecast in miniature what took place forty years later in the mass killing by gamma radiation, when atomic bombs were exploded over Hiroshima and Nakasaki. Edsall's patients were treated with old-fashioned gas tubes which delivered an unknown amount of x-ray of unmeasured wave length, and the technic described would indicate that the body was not shielded, so that whole body radiation was received by the patients. These patients with lymphoblastomas had such an overwhelming destruction of the white cells that they could not eliminate the waste produes fast enough to survive. Radiologists soon learned that even the normal human organism will tolerate only a very small dosage of radiation delivered at one time to the whole body surface. Such blastomas today are treated through small portals and with small doses spaced far enough apart to allow the excretion of the waste products of leucocytic destruction. We have seen only one fatality in our own experience which seemed to be the direct result of irradiation. This was a young Mexican man with a very large mediastinal lymphosarcoma, who was treated about twenty years ago. We gave him a moderate dose of x-ray to the anterior mediastinum; he seemed to tolerate this very well, and, in order to accommodate his time schedule, we very unwisely repeated this the next day, and allowed him to return to his home. The tumor melted like an ice cake in the July sun in Phoenix; in two weeks, it was entirely gone, and so was the patient! He could not handle the products of tumor tissue destruction and died in extreme radiation toxemia.

The second decade *1908 - 1917* was marked by the effort to bring under control, measure and evaluate the effects of x-rays, which were still being produced by gas tubes of vairous types. Toward the end of this decade the Coolidge tube was developed and this markedly changed the whole aspect of radiation treatment and radiation reactions. World War I slowed down research to a large extent. One of the best papers coming out of the experiences of this period was by Hall and Whipple (Am. Jour. Med. Sci., April, 1919), entitled "Roentgen Ray Intoxication" dealing with "the general constitutional reaction which follows prolonged exposures to the roentgen rays of the Coolidge tube."

1918 - 1927. Following the close of World War I, and with improvement in the Coolidge tube, a great impetus was given to new technics in x-ray treatment. The Germans advocated and tried out the massive dose technic, whereby effort was made to destroy cancer by a continuous radiation lasting six or eight hours, or even longer. Radiologists in this country never followed that technic but modified it in various ways, breaking up the treatment in such a man-

ner as would be best tolerated by the patients. The term "tolerance dose" came into use, based on the radiation sickness or intoxication, so that study of this sickness engaged the attention of radiologists, pathologists and physiologists. Much research work was carried out seeking to find the cause of the radiation toxemia. Experiments were carried out on acidosis, the alkaline reserve, water balance, chloride retention, toxic nephritis, autolytic ferments, gastric and intestinal secretions, leukopenia, and destruction of various tissue cells. Toward the close of this period, the situation was well summarized by Henry Schmitz of Chicago (Radiology, March, 1924). His statements and conclusions are still true, and pertinent for any type of radiation sickness. Quoting a few of these:

"The Radiation Intoxication: The symptoms are anorexia, nausea, vomiting, diarrhea, rise in temperature, increase in pulse rate, and marked prostration. . . . The symptoms are toxemic and mainly gastro-intestinal. . . . The acute symptoms may come within a few hours, or may be delayed for days or even weeks.

"Cellular destruction follows exposure to x-rays. The split proteins give rise to the acute intoxication. . . . It seems probable that the radiation sickness is due to an absorption into the circulation of the protein liberated by destruction of cells. It is more marked in a person already in a toxic condition from autolytic processes taking place in the cancer. . . . We should distinguish between the symptoms due to the acute constitutional toxemia and those caused by injury of the tissues and organs exposed to the x-rays."

1928 - 1938. Patients were treated with larger and larger doses of more and more penetrating x-rays. Super-voltage technics began to be tried, that is, x-rays produced by voltages above the conventional 200 and 220 kv. Since the radiation sickness was often a definite barrier to increasing the dosage of x-rays, attention was directed to combating this intoxication, or relieving it. Many remedies were tried. Barbiturates and other sedatives have been used for symptomatic relief; liver extract and thiamin, on the basis that they supply deficiencies produced by the radiation; antihistamines have been used on the theory that radiation sickness releases histamin and brings about an allergic reaction; the latest remedy advocated is the adrenocortical extract on the basis that radiation sickness is due to a deficiency of the adrenal secretions. Growing out of the accumulated experience, several essentials in preventing constitutional radiation sickness, or too great local tissue damage, are now universally recognized, and the reasons for these are applicable to radiation from any source to which the human organism may be subjected.

1. Selective dosage, based on the sensitivity of the condition or lesion to be treated. In the gradation of sensitivity of cells, the white blood cells, the hematopoetic cells of bone marrow and gonadal cells are the most sensitive to radiation, while the nerve cells, muscle cells and bone cells are the least sensitive.

2. Judicious spacing of treatments, so as to stay within the patient's general tolerance.

3. Screening so as to confine the radiation to the involved area. This was not done in Edsall's patients previously mentioned. The body will tolerate 500 roentgen units delivered through a portal 20 cm. square, whereas one-tenth of that amount delivered in one sitting to the anterior or posterior surface of the whole body might prove fatal—and the 500 units certainly would kill almost any person, if given to the whole body surface.

4. Cross-firing, so as to avoid normal tissues as far as possible, while building up adequate dosage in the involved tissue.

5. Suitable medication for the individual case.

6. Watching for blood changes, especially leucopenia, with appropriate treatment, by adjusting x-ray dosage, by hematinics, or by blood transfusions.

1939 - 1949. The great achievement of the last decade was the production of radioactive isotopes of the chemical elements—which is the chemical and physical basis of the atomic bomb. The build-up of our knowledge leading to this achievement can be briefed in ten steps:—

(1) Following the discovery of the unknown rays which Roentgen called "X" because they were unknown, came the discovery of the electrons as the unit of atomic structure, and then the establishment of the fact that x-rays are generated whenever fast-moving electrons are suddenly stopped by striking other larger material particles.

(2) The realization that the x-rays in an x-ray tube are produced by a stream of electrons striking the target of the tube.

(3) The development of the ability to control

the number of and the speed of the electrons in the Coolidge tube.

(4) The diversion of the flow of electrons away from a central target and out through a window of an x-ray tube, the Chaoul technic.

(5) The realization of the fact that x-rays or gamma rays of radium bring about ionization or detachment of electrons from the atomic structure of tissue cells.

(6) Development of the ability to ionize or break down the atomic structure of chemical elements by bombardment with high speed electrons.

(7) Development of apparatus for increasing the speed of electrons up to the speed of beta radiation of radium—these beta radiations being nothing but high speed electrons.

(8) The discovery of a third atomic particle—the neutron—in addition to the already known negatively charged electron and the positively charged proton of the atomic nucleus.

(9) The fact that bombardment of atoms with high speed neutrons and the introduction of these into the atomic structure will so disrupt that structure as to produce a radioactive isotope of the chemical element, or a neighboring one in the atomic chain.

(10) Finally, the ability to start a chain reaction of atomic fission, releasing the latent energy of the atoms so fast as to be explosive. Such atomic fission is always accompanied by incredible amounts of gamma radiation.

Physicists can now produce radioactive isotopes for any one of the 95 or 96 chemical elements. Some of these are coming into use for therapeutic purposes and doubtless others will soon be available. This growing use places a great responsibility on medical men in general to understand the dangers to themselves and to their patients in handling or administering any radioactive element or salt. Any of them can produce radiation sickness, either of a primary transient type, or the more dangerous permanent type.

Just as we were closing this half century's experience with x-rays and radiation reactions, there was suddenly dumped into the lap of the medical profession the problem of evaluating, protecting against, or treating, the radiation reactions or injuries produced by the explosive release of atomic energy. The wholesale destruction of the two Japanese cities by atomic bombs presented us with thousands of human victims of radiation, who graphically reproduced in the human organism the reactions and injuries from x-rays which had been observed during the preceding twenty-five or thirty years in various animals, in research departments of hospitals, clinics and laboratories. Research workers with x-rays had killed dogs, rabbits, guinea pigs, mice, chickens, goats and other animals by concentrated doses of x-rays. In other experiments sublethal doses of x-rays had been given and the tissue changes and symptoms of radiation sickness observed. We had assumed that the doses fatal to dogs and goats would also be fatal to human beings, but the ethics of a peacetime civilization would not permit the actual proving of this assumption. Since war has no ethics, the destruction of Hiroshima and Nagasaki presented us, as a side issue of that holocaust, a gigantic experiment in radiation sickness. This suddenly thrust upon us the imperative need for every doctor to develop an interest in, and a working knowledge of, radiation sickness and radiation tissue damages. It is a need we would prefer not to face, but which we cannot escape, because of the vital part the medical profession must play in the event of an atomic warfare. There is an almost frantic effort on the part of scientists and medical research workers in atomic fission to learn as much as possible about the effects of radiation and how these may be avoided, prevented, minimized, or treated. This is frankly in preparation for that possible, if not inevitable, day of disaster, when large segments of our population will suffer radiation injuries, and the medical profession be called on to care for the survivors.

Turn your imagination loose and suppose that Phoenix, Arizona should be one of the cities selected to be attacked by atom bombs in World War III, which will, doubtless, be precipitated as unexpectedly as was Pearl Harbor. If the bomb should be exploded over the Hotel Westward Ho about six o'clock some afternoon, what would be the effect? In addition to razing all the office buildings downtown and killing hundreds of people by the blast concussion and searing heat, the gamma radiation released by such a bomb would be immediately fatal to every survivor of the blast and heat within a radius of 4,000 feet from the zero point of explosion—or for those familiar with Phoenix between Seventh Avenue and Seventh Street, McDowell and the

railroad tracks—everyone would be killed except the people who might happen to be inside concrete buildings behind walls a foot thick. The gamma radiation from such a bomb is equivalent to that which would be given off from 100,000 pounds of radium—or fifty tons, and there is barely five pounds of radium in the whole world today. The statements just made apply to such bombs as were tested at Bikini, and we are told that they have been made much more powerful since then. Hence it is safe to say that a fatal dose of gamma radiation would be delivered to every person exposed within one mile of the zero point of explosion. For another mile beyond that limit, the gamma radiation would still be fatal, but more gradually so, to 75% of the people exposed. Further out the effects would diminish in proportion to the square of the distance, and such victims might recover in time, with appropriate treatment. In other words, in the outer suburbs of Phoenix, the doctors of that city would find the patients to whom it would be worth while giving attention, provided the doctors themselves survived.

In closing, the statement will bear repetition, that the clinical and pathological aspects of all types of ionizing radiation duplicate those produced by x-rays, so that if we would learn about radiation injury of any kind, it is natural to turn to the great reservoir of knowledge accumulated by radiologists during the past fifty years. The warning by Walsh in 1897 that x-rays can produce a toxic sickness has blossomed out many thousand fold into the great field of atomic energy radiation destruction. What we will do with this knowledge—whether it will be used to serve the world or destroy civilization—is not yet apparent. While we wait on the history makers to decide this, it behooves us as doctors to keep informed and be ready for the task of treating radiation sickness in days of peace, and for the greater task of "saving the pieces" as far as possible, if and when the evil days come upon us.

USE AND ABUSE OF THE LOW SODIUM DIET IN HYPERTENSION

WILLIAM H. BATES, M. D.
Cottonwood, Arizona

THE present status of the low sodium diet in hypertension is such that a revaluation of its use and abuse may be interesting.

It would be well first, to review a paper by Ayman[1] which was published in 1930. Ayman pointed out that many articles have been written regarding treatment in hypertension and that practically every article reported symptomatic relief. No author admitted complete failure. Symptomatic relief was always greater than reduction in blood pressure and often relief was obtained while the blood pressure remained the same.

Ayman studied forty patients with hypertension. These patients received a complete history and physical examination. Ayman then seriously and enthusiastically prescribed ten drops of dilute hydrochloric acid in one-half glass of water before meals, three times a day. Thirty-three of the forty patients, 82 per cent, showed definite improvement ranging from partial to complete relief of symptoms. Most patients improved after one week but some did not respond until three or four weeks. Only three untoward results occurred: the medicine made one patient so tired that she had to lie down after taking it; in a second patient it caused generalized pruritus with nothing to be seen on the skin, and the third patient, after three days, was seized with such headache, nausea and vomiting that she had to remain in bed for one week. Ayman points out that none of the hundreds of methods of treatment have any specificity. All have in common the enthusiastic treatment of the worried patient.

The statement[2] "always use the new drugs while they still have the power to heal", applies certainly to hypertension. While the physician is enthusiastic he obtains good results; when the physician becomes skeptical the previously valuable drug becomes worthless. Even the laity are amused when the druggist holds a vial before a prospective customer and says, "It has been a wonder medicine for over a week now."

Smith[3] states that the fundamental trouble is that we have no method of evaluating hyper-

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tensive disease other than by blood pressure and blood pressure even when repeatedly recorded over a protracted period is a clinical quicksand. A single reading is virtually worthless since blood pressure can be raised or lowered by a variety of unrelated factors. Patients should be hospitalized for three to four weeks and repeated blood pressures taken before a true baseline obtains. It is well known that a nurse or assistant may find the blood pressure relatively low, but when the physician takes it, the pressure may rise to surprising heights. With this in mind let us consider the low sodium diet in hypertension.

Ambard[4] in France was using the low salt diet in 1905. Allen[5, 6] advocated the low sodium diet for hypertension as early as 1920 in this country. Moderate restriction of sodium usually fails to influence the blood pressure and this is probably why the low sodium diet has not been too successful. McLester,[7] O'Hare and Walker[8] and Berger and Fineberg[9] did not use a sufficiently low sodium diet and thus did not get maximal effect. Observations of Mosenthal[10] in patients that the addition of sodium chloride to the diet did not further elevate the blood pressure tended to discredit the low sodium diet and it was not much used until 1944 when Kempner[11] published the results of his rice diet. It is very probable that the salt restriction which obtains in a rice diet is responsible for the results reported by Kempner.[12]

Perera and Blood[13] found that rigid withdrawal of NaCl from the diet resulted in significant weight loss and increased urinary output in non-hypertensive subjects, but not in patients with hypertensive vascular disease. This difference in response indicates a disturbance in salt and water metabolism in hypertension referable to renal changes probably mediated by the adrenal cortex.

Perera and Blood[14] further studied the relationship of sodium chloride to hypertension. Men and women with uncomplicated hypertension were studied. Blood pressure was higher than 140/90. Laboratory studies were negative. Blood pressure was taken at the same time every morning in bed. Five to seven readings were done and the lowest recorded. This is called "resting blood pressure." Any other blood pressure is "casual blood pressure." Patients were hospitalized for three weeks with no treatment. Patients had the same measured fluid intake daily and the same food daily with sodium chloride removed and then 4 grams added. Daily urine chloride, blood carbon dioxide, chloride, sodium, potassium, protein, urea nitrogen and serum volume were done.

After a three weeks baseline sodium was withdrawn. A decrease in resting blood pressure was noted in all patients from three to five days after withdrawal of sodium from the diet. Blood pressure returned to previous levels when sodium was added. The majority of readings, however, remained above 140/90.

Blood Pressure Before	Blood Pressure second week of Na Restriction
164/106	148/92
168/110	152/96
182/104	160/92
160/98	140/90
162/110	146/100
182/116	168/108

Slight weight loss and small increase of urine output occurred. Urine sodium chloride decreased. Other laboratory findings were unchanged.

The effect of increased sodium on blood pressure was then determined in a similar fashion. Six patients were maintained on the above schedule for three weeks. Sodium chloride was then increased to 15 grams daily for eight days. Rise in resting blood pressure was noted in one to four days with a return to normal when sodium chloride was reduced to 4 grams. Again casual readings were not influenced. There was slight weight gain and decrease in urine output. Other laboratory studies remained unchanged.

Blood Pressure before Increased NaCl Intake	Bloor Pressure after 8 days of Increased NaCl Intake
140/96	158/108
166/100	180/112
162/112	164/116
146/92	160/102
162/102	178/110
172/102	184/110

The effect of rigid sodium restriction is apparently unrelated to changes in circulatory volume or cardiac output. It must, therefore, be due to alterations in peripheral resistance. Sodium restriction affects only certain phases of the peripheral resistance because the patient's ability to respond to autonomic or neurogenic stimuli is unaffected. "Previous uncertainties concerning the effect of many therapeutic agents

may have been due to the failure to dissociate between extrensic (neurogenic) and direct actions on peripheral resistance, both of which seem to be involved—in variable proportions—in clinical hypertension."[14]

The low sodium diet-forced fluid management of hypertension was recently studied by Bryant and Blecha at the University of Michigan.[15] For periods of several weeks to one year 100 patients with essential hypertension were placed on a diet of 2200 calories, containing approximately 200 mgm. of sodium, 2.2 gm. of potassium, 70 gm. of protein, 80 to 175 gm. of fat, 130 to 230 gm. of carbohydrate and vitamin supplements. The daily fluid intake was 3000 c.c. No pretreatment blood pressure was below 170/100. There was a significant lowering of blood pressure to or below 155/95 in about 20 per cent of the cases, and a lowering of diastolic pressure to or below 95 in an additional 15 per cent. Several patients who originally displayed papilledema and moderately severe heart failure became free of symptoms and have shown a definite decrease in heart size along with the fall of blood pressure. Older patients with long-standing hypertension have experienced more striking improvements than younger patients.

An interesting comparison of changes in hypertension with surgical and dietary management is seen in the following chart.

The low sodium diet should be tried in essential hypertension with negative laboratory findings, in older patients with long standing hypertension and in arteriosclerotic and hypertensive vascular disease with cardiac, cerebral, retinal or renal involvement. It should be used as a therapeutic test before sympathectomy is considered.

The low sodium diet should not be used when hypertension is due to pheochromocytoma, pyelonephritis, congenital hypoplasia of the kidney, hydronephrosis, hypernephroma, atrophic kidney with ureteral occlusion, radiation sclerosis of one kidney, ureteral occlusion, renal infarction, pyonephrosis or unilateral renal tuberculosis.

The low sodium diet requires the strictest cooperation between the patient and physician. Failure will result if a complete understanding and honesty does not exist between the patient and physician. The low sodium diet is abused if the physician hurriedly tells the patient that he has high blood pressure and to stop using salt. The doctor must explain the program in detail and the patient should come back at weekly intervals for a time.

The question of salt substitutes usually arises. Patients who have been on a low sodium diet for some time usually prefer none. The disadvantage of salt substitutes is that they do not taste like salt. In some salt substitutes lithium has been used as one of the ingredients. The chief advantage of lithium chloride over other substitutes is that it more closely approximates the taste of sodium chloride. It has recently been noted that the use of lithium chloride in patients on a low sodium diet may cause toxic signs and symptoms.[16, 17, 18]

If the patient does not use salt substitute, a simple test of the urine is available which determines roughly the urine chloride. Since the urine chloride and sodium are grossly parallel, the test may be done to determine the patient's urinary sodium output and thus his sodium intake.

One drop of 5% solution of potassium chro-

BLOOD PRESSURE CHANGES IN HYPERTENSION WITH SURGICAL AND DIETARY MANAGEMENT

Groups	Diastolic Reduction	Smithwick*		Splanchnic†		Low Sodium‡	
		Cases	%	Cases	%	Cases	%
I	30	64	41.0	33	16.5	8	17.8
II	20-29	32	20.5 } 79%	33	16.5 } 50%	18	40.0 } 76%
III	10-19	28	17.9	34	17.0	8	17.8
IV	to 9	17	10.9	50	25.0	5	11.1
V	higher	15	9.7	50	25.0	6	13.3

* Follow up 156 patients 1-5 years post surgery.
† University Hospital—200 patients living out of 238 operated (bilateral supra diaphragmatic splanchnicectomy and lower dorsal sympathetic ganglionectomy 1-2 years later).
‡ 45 unselected hypertensive patients treated for several weeks to 14 months with 200 mgm. forced fluid regimen.

mate is added to ten drops of urine. A 2.9% solution of silver nitrate is added drop by drop until the solution changes to a red color which is the end point. Each drop of silver nitrate is roughly equal to one gram of NaCl in the urine per 24 hours. Thus if it is necessary to add three drops of silver nitrate to get the persistent red color, the patient has taken 3 grams of NaCl in the diet the past 24 hours. Normal diet gives a urine which requires from 6-11 drops of silver nitrate, approximately 6-11 grams of NaCl in the diet. The patient is not on a low sodium diet until one drop of silver nitrate produces the red color. This means that the patient is eating less than one gram per day of NaCl if he is not using a salt substitute.

In conclusion, several facts should be pointed out. Much conflicting evidence still exists regarding the low sodium diet in hypertension.[20] Some authors conclude that there is nothing to suggest that the small changes in resting blood pressure associated with rigid sodium restriction are of therapeutic significance or that prolonged restriction will exert any influence on the natural history of hypertension.[14] Other authors have demonstrated marked subjective improvement which includes drop in systolic blood pressure of 40 mm. of mercury or more, drop of diastolic pressure of 20 or more mm. of mercury, improvement in eye grounds, decrease in heart size and changes in the EKG consisting of decrease in the axis deviation, change of T_1 in the direction from inverted to upright.[19] Still others[15] state that results in essential hypertension with low sodium diet are better than those achieved by operation and this is especially so for those with far advanced heart and eye ground changes.

It is believed at present that the low sodium diet has a definite place in the management of hypertensive vascular disease.

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SECRETARY'S LETTER

Many types of letters are addressed to the president of the American Medical Association, but Dr. Ernest E. Irons received one last week that is a No. 1 morale builder.

Reading it, said Dr. Irons with a smile, one becomes suddenly aware of a fresh breeze blowing through tired brain cells.

The letter did not come from a doctor. It was written by Mr. Joseph Christensen, of the Progressive Cafeterias in Chicago, and reads as follows:

> "I cannot put M. D. after my name but I can, at least for a while, still put U. S. A. As a consequence, please accept the enclosed check for $25 as a slight token of regard for my doctor and all his colleagues. These are my 'dues' as a citizen, and I hope they will help in your fight against socialized medicine.
>
> "A people without guts are soon a nation without guts, and if it should become necessary to remove any part of mine, I want to pick my man and pay his charge without a precinct captain getting his nose in my anatomy."

ULCERATIVE CECITIS WITH INTRAMURAL AND SEROSAL HEMORRHAGES AND ABSCESSES OF NON-SPECIFIC VARIETY FOLLOWING SUBCUTANEOUS INJURY TO THE ABDOMEN

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REPORT OF CASE

FOLLOWING subcutaneous injury to the abdomen, a 22-year-old white man of Mexican ancestry was admitted to the hospital on March 2, 1948 because of abdominal pain. The patient gave the following history:

While he was chopping wood four days prior to admission, a stick, impelled by the blow of an ax, struck him in the right lower quadrant of the abdomen. He had little pain at the time and regarded the accident lightly. On the following day, however, pain recurred and became persistent and increasingly severe. There was no nausea or vomiting; the patient had no urinary symptoms. His bowel movements remained normal.

Examination on admission revealed a well nourished, well developed, young man of Mexican descent. Physical examination was not remarkable except for pronounced tenderness over McBurney's point. The blood pressure was 110/70 mm. of mercury. Temperature was 100.2, pulse rate 98, respiration 24. The red blood cell count was 4,600,000. The white blood cell count was 9,500. Hemoglobin was 90% and differential count showed neutrophils 81%, lymphocytes 14%, monocytes 5%. The bleeding time was 1½ minutes, coagulation time 5½ minutes. The urinalysis showed specific gravity of 1020, and was negative for albumen and sugar; an occasional sperm was seen in the microscopic study.

The diagnosis of acute appendicitis was made. The possibility of some relationship to the trauma was considered and immediate appendectomy was decided upon. A McBurney muscle-splitting incision was made and when the peritoneum was encountered free fluid was found. This was thin, brown-gray and not malodorous. The cecum was found in the operative field and on it there was encountered an area which at first appeared to be exudate. This area was near the ileocecal valve and the base of the appendix. Further investigation revealed that it represented an abscess involving the wall of the cecum. There was seepage through the serosa over this area which was about 5 cm. in diameter. It was necessary to resect this lesion and it was possible to free the cecum by cutting its lateral attachment. Using a Furniss clamp, the area to be sacrificed was brought up through the clamp and after applying a clamp distally for protection, the protruding bowel was sacrificed. The part remaining flush with the clamp was treated with phenol and alcohol. Closure was effected over the spit of the clamp using chromic catgut followed by fine silk for a second row of sutures.

Immediate examination of the resected lesion showed a considerable defect in the wall of the cecum which resembled an evacuated abscess. The possibility of amoeboma was considered; however, the lesion lacked granulomatous characteristics. Smears from the interior of this lesion were examined and several cysts were found. They resembled E. histolytica, but were not positively identified as such. On the basis of the examination, the patient was given emetin hydrochloride, one-half grain twice a day for seven days. Numerous examinations of the stool were negative; however, on the 15th of March, cysts of E. histolytica were found in the stool. At that time the patient was placed on diodiquin, 3.3 grains three times a day. Recovery was uneventful.

The surgical specimen was studied by Leo Kaplan, M. D., Chief, Laboratory Service, Vet-

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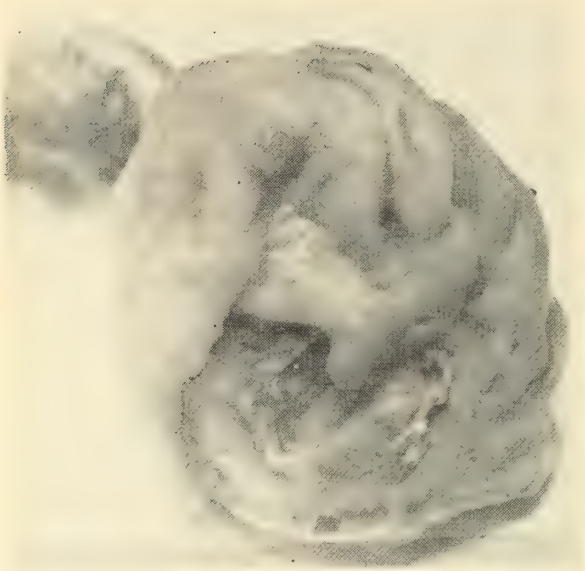


FIGURE I—Gross appearance of resected area of cecum involving abscess as shown from mucosal surface.

erans Administration Center, Los Angeles, California, whose report follows:

"The specimen consists of an irregular segment of the wall of the cecum measuring 7.5 x 4.0 x 1.0 cm. and a bisected appendix measuring 7 cm. in length and approximately 0.8 cm. in diameter. A segment of mesoappendix is attached. The serosal surface of the cecum is coarsely and irregularly folded and indurated. It is generally dull. The colors vary from slate blue to pale tan. A trans-section has previously been made through ulceration of the mucosa. The ulcer measures up to 1.5 cm. in diameter at its mucosal aspect. It penetrates to the serosa which at this site is covered by friable granular material and which appears to have undergone marked degenerative changes. The walls and floor of the ulcer are dirty grey-white and irregularly granular. The ulcer undermines the superficial layers of the bowel for a variable distance up to approximately 0.5 cm. in its circumference. The mucosa and the rest of the bowel wall are indurated for approximately 1.0 cm. about the ulceration. The serosal surface of the appendix is generally dull and brown, but is transparent throughout. Several minute dilated subserosal granules are apparent. On section the wall is found to be approximate uniform thickness and the lumen of slightly variable diameter but patent throughout.

DIAGNOSES: Ulcerative cecitis with intramural and serosal hemorrhages and abscesses of non-specific variety.

No amoeba observed.

Organizing fibrinopurulent pericecitis and periappendicitis."

SUMMARY AND DISCUSSION

1. A single case of ulcerative cecitis following trauma to the abdomen is presented.

2. Absence of amoeba or cysts in section of the cecum speaks against this protozoan as an etiological agent.

3. It is believed that trauma may have been a factor in the patient's disease and that this case might therefore be considered as one of cecitis following subcutaneous injury of the abdomen.

RECENT PROGRESS IN CANCER

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THE problem of cancer is a challenge to the scientists of the world. The outlook for the solution of the cancer problem is hopeful. Increased funds are being made available for research and a growing body of skilled workers in the field are extending their knowledge with respect to cancer. The ultimate hope of conquering cancer lies in scientific research. In the field of biology, the fundamental problem of cancer is bound up with the factors which control normal and abnormal growth.

Cancer follows no set rules in its lethal growth. Many unpredicted factors may nullify the calculated result of treatment. Probably among these is the inherent susceptibility or resistance of tissues of the individual to cancer derived from his ancestors. The patterns of growth and the spread of cancer in two portions of the same organ are interesting in their extreme divergence.

The research man, confronted by this baffling maze of inter-relationships within the living cell, cannot give up.

He knows that the presence or absence of certain genes controls susceptibility or resistance

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to malignant growth, and that the hereditary characteristics of a cell can be changed by exposing its nucleus to certain cancer agitator. He knows a virus can also cause the cell to become cancerous and that, strangely, the virus greatly resembles the nucleus of the cell.

He knows that production of enzymes within the cell is controlled by the genes. He also knows that when the gene is changed by a cancer irritant one result is partial destruction of the enzyme production capacity that the gene transmits to its offspring. Somewhere within this closed circle of the cell's processes lies the explanation of why a normal cell turns cancerous and grows wildly. The question, is where?

Clinical research in cancer has been and is still being handicapped by the fact that there are not enough fundamental scientists with a knowledge of the physical, chemical and biological factors which govern the basic phenomina of cell growth. Researchers are now going to produce basic knowledge which may be applied through clinical research in developing better means of early diagnosis and appropriate treatment. Herein, lies the only hope of cure in cancer.

Research has already made significant contributions to progress against cancer. These include the first known test for a form of cancer, a hormone suppression treatment for breast and prostatic cancer, the nitrogen mustard treatment for Hodgkin's Disease and lymphacytic leukemia and the operation technique for cancer of the esophagus and pancreas. Castration therapy and the administration of the female and male hormones all have a place in the treatment of advanced cancer.

There have been some recent changes in the tests for cancer which will make it much more simple. I have no personal knowledge of these tests other than the information which I have obtained from literature, so I feel that it is best to stop here.

Taylor and his associates observed the effects of estrogenic substances in the last eighteen months on 42 patients with advanced inoperable cancer of the breast. They selected 29 patients with advanced cancer of the breast for androgen therapy. In this group there were more patients of younger age and more with osseous metastases than in the group given estrogens; included here, too, were patients who showed a poor response to estrogens. It was found that diethylstilbestrol and ethinyl estradiol produced regression in primary lesions and in soft tissue metastases of cancer of the female breast and apparent inhibition of osseous metastases in certain cases. These effects were found in no more than half the patients treated. Age was the only clearly determined factor influencing the response of these patients to estrogens. The most satisfactory results are obtained in patients more than 60 years of age. Apparent acceleration of tumor growth was occasionally produced by estrogens in younger patients, less often in older ones. Androgens produced reduction in soft tissue, as well as in osseous metastases in some cases. The response to androgens is similar to that of estrogens, except that androgens are effective in both younger and older age groups, whereas estrogens may more frequently cause acceleration of growth in the younger age group. Some patients seem to respond equally well to either drug, while others respond to neither. Androgens also occasionally produce acceleration of tumor growth. Androgens controlled the pain and produced recalcification of osseous metastases more efficiently than estrogens. Neither estrogens nor androgens produced a permanent control of metastatic breast cancer.

Researchers first discovered that in dogs the development and function of the prostate gland were to a great extent governed by the male sex hormone. The same was found true in men. Next it was learned that castration or elimination of the male sex hormone, brought immediate relief from pain, improvement of appetite and a gain in weight for most prostatic cancer patients. Then it was found the same results could be attained by administration of the female sex hormone. Complete cure has not been the rule but a significant number of men has remained free of symptoms for five years. In prostatic cancer the effect of estrogenic substances and the androgens are very similar to the results obtained in the breast cancer. Neither estrogens nor androgens produce a permanent control of metastatic prostatic cancer.

Although the research program is necessarily focused on the prevention and cure of cancer, the advanced cancer patient has not been neglected.

Physicians have long relied on morphine, which is very effective, for relief from severe

and continued pain. But this drug may produce nausea, mental dullness and other side effects; further, the patient may develop tolerance, requiring increased dosage. One drug, methadon has proved especially valuable in hopeless cancer cases. It can be given by mouth instead of by injection, and it appears equal or superior to morphine in relieving pain. Unpleasant side effects are less and tolerance develops more slowly.

Surgical treatment and irradiation, singly or in combination, still must be considered the primary forms of treatment, steroid hormone therapy being reserved only for those cases in which orthodox methods cannot be applied or have proved unsuccessful.

This last point is of considerable importance, and the usefulness of properly administered roentgen irradiation and operation should not be overlooked in the present period of steroid research. Roentgen irradiation in the control or palliative treatment of inoperable breast cancer, and of recurrences or metastases, is of well established usefulness. Its employment in the treatment of inoperable primary lesion, local recurrences, regional lymph node metastases, most cases of bone metastases and selected cases of pulmonary, cerebral and other metastases will usually alleviate symptoms and prolong life. The side effects of irradiation, properly administered, are usually fewer and less severe than those of steroid therapy, at least up to the present date. Steroid therapy should, the participating investigators believe, be reserved, in everyday clinical practice, for patients in whom the possibilities of adaquate surgical treatment and careful roentgen irradiation have been first fully utilized and have given clear evidence of being no longer of benefit. Use in this sequence is suggested as being the most logical method in the light of present information. The fact that steroid hormones do produce changes provides a hitherto unavailable tool for the study of the growth and regression of cancer cells.

One of the most hopeful advances of cancer research was the proof that nitrogen mustard, although not a cure, had a retarding effect upon cancer. Nitrogen mustard was developed originally as a military poison gas and is a most interesting cystotoxin. It neutralizes the disease producing power of viruses, halts cell division and retards or alters embryonic development. It has shown some promise in Hodgkin's disease and leukemia, but has not proven as effective as has x-ray treatment.

In acute leukemias, no consistant clinical remissions were seen after the administration of nitrogen mustard, but occasional temporary systematic relief occurred from nitrogen mustard therapy. In chronic lymphocytic leukemia results are difficult to predice. In general, those with far advanced disease responded poorly.

Karnofsky and associates have obtained in the course of their study of the effects of the nitrogen mustards on various types of neoplastic disease, a remarkable temporary remission in a patient with an anaplastic cancer of the lung. This observation prompted the more extensive trial of the nitrogen mustards in primary lung cancer. Methyl-bis (beta-choloethyl) amine hydrochloride (HN_2), a nitrogen mustard, was used in the treatment of 3 5patients with inoperable cancer of the lung. In nearly three-fourths of the patients some clinical improvement occurred. This was evidenced by an alleviation in symptoms such as cough, dyspnea, hemoptysis, pain, weakness, and the syndrome associated with obstruction to the superior vena cava and by such objective changes as regression of pulmonary and metastastic lesions and absorption of pleural effusions. The improvement usually lasted from two weeks to two months, and further courses of the drug were usually not as effective as the first. In the rapidly growing, anaplastic lung cancer, the nitrogen mustard frequently alleviated symptoms and appeared to interrupt the course of the disease briefly; here it may be more effective and sometimes less hazardous than roentgen therapy.

Some clinical improvement was produced also in the more slowly progressing lung tumors, but in these conditions, particularly in the early stages, roentgen therapy may alleviate symptoms for long periods. It is suggested that nitrogen mustard may occasionally be effective as an adjuvant to roentgen therapy in the palliative management of lung cancer. In one patient with a recurrent pleural effusion caused by metastases to the pleura, the intrapleural injection of HN_2 prevented further formation of fluid. Of 18 patients presenting a miscellaneous group of tumors the use of HN_2 caused brief clinical improvement in two with metastatic cancer of the prostate no longer responding to hormonal therapy and in one patient each with carcinomatosis from a gastric cancer, metastatic seminoma,

carcinomatosis from adenocarcinoma of the uterus, neurogenic sarcoma and neuroblastoma.

The cystological method as an aid in the diagnosis of cancer has been discussed widely and has been recommended as a routine test in a gynecological examination. Slides taken from patients with degenerating cervical polyps has sometimes presented a confusing picture. The cells seen in these slides show marked distortion of cervical cells, which may be shed in numbers, occasionally there will be bizarre nuclei that may also be hyperchromatic. Slides from patients with pelvic inflammatory disease might be difficult to evaluate because they show cells that are not only bizarre, but at times suggest cancer Estrogen effect can present a confusing picture, especially when the examiner of the slides does not know that the patient has been taking estrogen.

The presence of endometrial cells on a slide received from a patient past the menopause is, in itself, an abnormal finding. Hyperplasia, of the endometrium, especially one induced by prolonged estrogen therapy, will at times give rise to shedding of endometrial cells with nuclei of different size and staining quality, hyperchromotosis, as well as vacuolization—characteristics that will make distinction from endometrial cells obtained from adenocarcinoma difficult at times. However, close and detailed examination of these slides will usually lead to the correct interpretation.

The changes that are obtained in cells after irradiation especially soon after the event of irradiation, might cause a difficult differential diagnosis. A case that has been followed at regular intervals after radiation therapy in which cystological examinations show no malignant cell changes for a while, and then malignant cells appear, rarely present a cystological problem. But the isolated slide from a patient who has recently received radiation therapy, in whom the cell population before irradiation is unknown, and in whom the gradual changes after irradiation have not been observed, may be difficult to interpret. It has been shown that cancer of the female genital tract can be found with the cystological method. It has also proved valuable to the practicing physician, who, by obtaining routine slides made from vaginal or cervical secretions, has his attention called to the existence of early clinically unrecognizable cancer.

The cystological method must not be depended upon in the diagnosis of cancer, it is a distinct aid in the diagnosis of cancer, but not as one that replaces histological methods. A negative smear is not an absolute proof that cancer is not present. On the other hand, a positive vaginal smear should only lead to a thorough investigation, not to immediate therapy. It should be emphasized, that the cystological interpretation should not be used as the only diagnosis and that a histological examination and diagnosis must be made before treatment is instituted for cancer of the uterus.

Sponge biopsy, a new method involving the use of sponges in the collection and preparation of tissue for microscopic examination, is appliable in the study of accessible ulcerative lesions or mucous membranes that may be reached by the sponge. The method was applied with additional tissue for comparative study and made available by surgical biopsy, surgical specimen or post-mortem examination. With respect to accuracy and reliability of results, the method of sponge biopsy closely approximates that of surgical biopsy.

Woolner and McDonald examined sputum or bronchial secretions for cancer cells from a total of 1,600 patients. In 150 of these the results were positive. Sputum was examined while fresh or it was collected in a few cubic centimeters of 95 per cent alcohol. Five smears were made from each specimen. The smears were fixed, while wet, in equal parts of absolute alcohol and ether for thirty minutes. The staining method adopted was Harris' hematoxylin followed by dilute eosin as a counterstain. Cancer cells in smears could be distinguished from normal cells by numerous atypical characteristics including large size, variation in size and shape of the cells and of the nucleus, the nuclear-cytoplasmic ration, hyperchromatism of the nucleus and the presence of large nucleoli. The appearance of cancer cells in sputum and bronchial secretions varies with the histologic type of tumor in the bronchus. Cancer cells originating in a bronchogenic cancer of small cell "oat-cell" type or in a keratinizing squamous cell type provide the most distinctive morphologic characteristics. In the more undifferentiated tumors, a diagnosis of "cancer cells present" was made without reference to histologic type. In 146 of the 150 cases the source of the atypical cells was believed to be a tumor in the bronchial tree. In 141 of the

146 cases a final diagnosis of cancer of the lung was made. In three cases diagnoses made on the basis of smears were proved to be false positive. In two cases the final diagnosis was not definitely established. Cancer cells in sputum or bronchial secretions provided the only preoperative microscopic evidence of cancer in 25 of a total of 58 cases in this series, in which surgical exploration was carried out. Of 24 cases of bronchogenic cancer in which the lesion could be removed, cancer cells in the smears provided the only microscopic evidence of cancer in nine cases.

Differential diagnosis of breast tumors by physical examination is a commonly difficult clinical problem and it is frequently impossible to arrive at a definite diagnosis without a biopsy. This is particularly true in the case of early lesions, which are now seen more frequently owing to the current cancer educational campaign.

Because of the greater number of breast tumors seen in their early stage when physical signs are not yet well developed, an increasing proportion of our cases must be scheduled in the operating room for local excision and frozen section diagnosis. It is imperative that we obtain microscopical proof of cancer by formal surgical biopsy or aspiration prior to performing radical mastectomy.

The majority of benign and malignant lesion of the breast lend themselves readily to gross or microscopic identification. However, it is apparent that many pathologists still confuse the process that we designate by the term, "sclerosing adenosis" or "sclerosing adenomotosis" with cancer of the breast. Ewing was quite correct in his statement that sclerosing adenosis constituted the one benign breast lesion most often mistaken for mammary cancer. Unquestionably, in the statistics of cured cancer cases, there are many inclusions of this lesion, which results in a higher percentage of curability than is valid for true breast cancer.

Sclerosing adenosis is a specific benign breast lesion not infrequently erroneously diagnosed as mammary cancer. Slerosing adenosis rarely occurs as a localized, palpable mass. The consistency is usually less rubbery than that of fibroadenoma and less firm than that of mammary cancer. The tumors exhibit nodularity of varying coarseness. They are distinct but not definitely incapsulated. At its periphery the lesion is usually noninfiltrating in appearance, but some specimens may be confusing in this respect. A characteristic finding on gross examination is definite tabulation that may vary from a millimeter to more than a centimeter in diameter.

These lobules usually occur in contiguity but may merge or be separated from one another. The lobulated surface customarily projects slightly. But when lobulation and circumscription are not clear, and if chalky streaks and undue firmness are added, one is very apt to get a gross impression of mammary cancer.

Physical examination revealed inconstant findings. Some are freely movable and others are somewhat fixed. Some are diffuse and others are more discreet in outline. Some are of a rubbery consistency while others are quite firm. It is obvious that accurate clinical diagnosis of sclerosing adenosis is impossible when one considers the diverse signs and symptoms found in such cases. Differential diagnosis must be made on pathological grounds. Although, as has been stated, the gross appearance of the lesion is usually quite typical. In exceptional cases, we must depend entirely upon frozen section examination and decision may be very difficult. The greatest importance of sclerosing adenosis lies in its occasional misinterpretation and the rendering of an erroneous diagnosis of cancer. Biopsy examination of all breast tumors prior to radical surgery is imperative.

CONCLUSIONS

We are making some progress in the advancement of cancer, so the outlook for the solution of the cancer problem is hopeful. The ultimate hope of conquering cancer lies in scientific research. Research has already made significant contributions to progress against cancer. Much work is being done in advanced cancer, with the administration of estrogens and androgens. While some temporary improvement has been noted after the administration of these substances, neither estrogens nor androgens produce a permanent control of metastatic breast or prostatic cancer. Nitrogen mustard has some retarding effect upon Hodgkin's disease and leukemia, but has not proven as effective as irradiation. There has been a remarkable temporary remission in patients with anaplastic cancer of the lungs. Surgical treatment and irradiation, singly or in combination, still must be considered the primary forms of treatment for cancer.

Estrogens and androgens are being reserved only for those cases in which the orthodox methods cannot be applied or have proved unsuccessful. The cystologic method is a distinct aid in diagnosis of cancer and is strongly recommended, but not as one that replaces histological methods. The diagnosis should be confirmed before treatment is instituted for cancer. Sponge biopsy is applicable in the study of accessible ulceration lesions or mucous membrane that may be touched by the sponge—it closely approximates that of surgical biopsy. Sclerosing adenosis is a specific benign lesion of the breast, not infrequently erroneously diagnosed as breast cancer. Differential diagnosis must be made on pathological grounds. Biopsy examination of all breast tumors prior to radical surgery is imperative.

I have worked with the cancer problems for a half century and have seen remarkable progress during that time. Many years may elapse before the mystery of cancer growth is completely solved. Fortunately, great improvements in prevention and treatment need not wait.

MAGNETIC INTRA-OCULAR FOREIGN BODIES

A. E. CRUTHIRDS, M. D.
Phoenix, Arizona

WHEN a patient presents himself with a history of experiencing a sharp pain in the eye while hammering or manipulating metal of any kind, we must realize that here is a major ophthalmic problem. A brief history and a thorough eye examination is indicated, keeping in mind that about 60% of intra-ocular foreign bodies are steel, that 72% of foreign bodies enter the eye through the cornea, and that 82% of intra-ocular foreign bodies are found in the posterior chamber of the eye.

The important points in the history are:

1. Time of accident—if gotten within a few hours, then foreign body is easily extracted. If after a few days to a week, foreign body may be embedded in exudate and difficult to remove.
2. Type of metal handled—if it is ordinary iron or carbon steel, it is easily extracted, but if copper, lead, zinc, aluminum, glass or plastic, it is not so easily extracted.
3. Distance and possible angle of origin of foreign body — how far away — must be learned.
4. If not a severe injury, we test vision and near distance.

EYE EXAMINATION

Examination of eye should include:

a. Slit lamp examination and staining with fluorescein the cornea and conjunctiva to detect point of entrance. Both Bowman's Membrane and Descemet's Membrane should be examined for injury.

b. Anterior chamber should be studied for blood cells; however, blood in the anterior chamber can come after contusion of the eyeball.

c. Tension should be taken as there is generally loss of tension in penetration cases.

SCOUT X-RAY FOR DETECTION ONLY

The next move is an A-P and Lateral x-ray—a preliminary test with a hand or giant magnet or Berman Locator is made to determine if there is a magnet response, after which patient is sent for x-ray localization. There are about 30 different methods of localization of foreign body varying in detail. I shall briefly discuss other aids in foreign body localization with the object in mind of obtaining a pin-point localization. The localization must be meticulously accurate because it is upon this localization, size, shape, and quality of the foreign body that we base our judgment of whether to use the anterior or posterior route of extraction.

BERMAN LOCATOR

One of the most useful tools for accurate foreign body localizing developed during the war and used successfully at Pearl Harbor is the Berman Locator which gives a shrill audible and a visable dial signal when the magnetic finder is near the foreign body.

TYPICAL LOCATOR CASE

A surgeon reports a case where patient was struck in the eye by a fragment from a hammer. X-ray was negative for foreign body. The Berman Locator was applied and it indicated the foreign body 8 mm. posterior to lower margin of cornea. A thin flake-like particle 2 x 2 mm. was removed by hand magnet through scleral incision and eye saved.

In Field of Oto-Laryngology

Presented before Regular Staff Meeting, St. Joseph's Hospital, Phoenix, September 12, 1949.

1. Foreign body in neck may be localized.
2. Broken needles after T. and A. located.

The Berman Locator is a valuable aid in removal of intra-ocular foreign body and affords definite information as to position of particle at all stages of operation.

If trans-scleral removal is chosen, one may determine before making incision if object can be drawn to a site of election in the so-called silent area between ciliary body and ora serrata 5.5 to 8 mm. behind the limbus. If the foreign body is fixed to the sclera and can't be moved by magnet, then the exact point for incision can be pointed out avoiding traumatizing exploration.

The Berman detector causes no movement of the foreign body as compared with the magnet testing which may change the localization position. Some non-magnetic foreign body like copper and brass may be located with it. It tells you the point of sclera nearest foreign body and hence site in most instances for incision.

USE OF BERMAN LOCATOR

Devised by Mr. Samuel Berman of the electrical engineering department of N. Y. C. Transit System for Dr. John J. Morehead, who recognized the need for an operating room instrument to supplement x-ray localization of embedder foreign body which proves elusive and difficult to find, however accurate the x-ray localization may be. The Berman Locator becomes actuated by fragments of iron, steel, copper, silver, aluminum, lead and their combination. Soft iron and ordinary carbon steel is most responsive—alloy steel less responsive. Certain stainless steel alloys are non-magnetic—no response:

Common Iron and Steel

Dia. of Mass	Approximate distance of detection from bare element (with shield—rubber).
¼ mm.	2½ mm.
1 mm.	10 mm.
3 mm.	30 mm.
Ordinary steel needle	2 in.
3 in. iron nail	4 in.

Non-magnetic metals (copper, brass, aluminum, lead, etc.) response is relatively low and not always helpful.

.45 caliber lead bullet	¾ mm.
.22 caliber lead bullet	⅛ mm.
Copper 1c piece	1 inch

BERMAN POINTS IN BERMAN LOCATOR TECHNIQUE

1. Magnet must be kept six feet away or it will magnetize the probe and cause sudden reduction to sensitivity.
2. Have Locator Assistant help doctor put sterile rubber cover on probe in operating room.
3. Operating table should be wood or pillows or sand bags 15 inches high under patient.
4. All towel clips should be 5 inches from field retractor to be non-magnetic.
5. Always shield probe tip.

MAGNETS—HAND AND GIANT

Our supreme aim in intra-ocular foreign body extraction is removal of foreign body with the minimum amount of trauma using the weakest magnetic force which will remove the foreign body. In addition to the hand magnets we have the powerful giant electro-magnets of Haab, Lancaster, and oval shaped magnet of Mellinger. It is the interior route where the giant magnet finds its most usefulness. Quite frequently the hand magnet will suffice in posterior foreign body extraction.

The work done by Struble (reported in 1946 in O. and O.) is shown in the following three slides and gives us experimental data as to what distances various sized particles could be drawn through the vitreous and through the Uvea and out of the scleral incision. Particles of steel shavings, 1, ½ and ¼ mm. were used because they were the size most encountered clinically.

Steel Fragment	Certain Zone I Dist. in MM.	Critical Zone II Dist. in MM.	Failure Zone III Dist. in MM.
¼ mm.	3	3 to 7	greater than 7
½ mm.	6	6 to 11	greater than 11
1 mm.	11	11 to 16	greater than 16

This of course is posterior route extraction in the pars planus 8 mm; from limbus, and is a furthur argument for precise pin point localization. The loss of power by increasing the distance from the magnet to the foreign body is equal to the cube of that distance. So if the pulling power of a magnet at 1 mm. is—say 1 gram—thus by increasing the distance to 2 mm. the pulling power becomes ⅛ gram; at 3 mm. distance 1/27 gram; 4 mm. 1/64 gram, etc. The larger the foreign body, the more magnetic lines reach it and the stronger the pull.

Now as to the controversial question of removal of foreign body through posterior route or

anterior route. Shall the foreign body be taken out through the scleral coat, (presuming the foreign body lies behind the iris-ciliary body) or shall it be coaxed around the suspensory ligament of the lens and into the anterior chamber of the eye through the pupillary aperture and there removed by a clean incision in the anterior chamber. Dr. Edmund Spaeth, Will's Hospital, Philadelphia, Pa., says there is not the slightest doubt whatsoever that the posterior route surgery results in the highest percentage of lost eyes. The anterior route results in a considerably higher percentage of successful operations and successful extractions.

However, there are certain situations where the posterior route may or must be used and also situations where the anterior route may or must be used. The smaller the particle—the anterior route is used. The larger the particle—the posterior route is used or permitted—one must stay behind equator with posterior sclerotomy. One must avoid large vortex veins. Sclera must be sutured after posterior sclerotomy.

The matter of retinal detachment following posterior route extraction is a most serious subject. This is a most common complication following posterior route extraction. The magnet tip should never be introduced into the eye.

RETINAL SEPARATION

In posterior route retinal separation offers little hope of cure in comparison to other retinal separation cases presumably because normal vitreous actually separates retina from choroid.

Danger of sympathetic ophthalmia is slightly up in posterior route cases. There is a limit of safety for sympathetic ophthalmia. All eyes that eventually will come to enucleation should be enucleated before the dead line of 12 days.

Now as to the anterior route, the magnet tip is to be started as far posteriorly as is possible. Then with the magnet field closed, the foreign body will pass to that magnet field by its shortest possible route. Then as the magnet is carried forward, the foreign body should pass through the suspensory ligament of the lens into the posterior chamber of the eye. From there it can be coaxed around the iris on its posterior surface through the pupillary aperture and into the angle of anterior chamber—to be then removed by the hand magnet after making a corneal incision. If the foreign body is caught badly in the iris, iridectomy should be made and foreign body extracted with hand magnet.

Another method of differentiating intra- from extra-ocular foreign body is the use of air or oxygen in Tenon's Capsule. 6 c.c. air or oxygen is injected into capsule of Tenon. It is diagnostic but hazardous if operation is performed soon after injection is made where anterior chamber has to be opened as the air in Tenon's Capsule exerts pressure causing loss of vitreous and iris prolapse.

We may use the following in anterior chamber:

Air—3-4 days absorption

CO_2—too rapid absorption to be practical

O_2—best 4 to 8 hours before there is complete absorption.

TECHNIQUE

Use curved 25 needle 10 c.c. syringe, have eye look down and in, needle inserted 6 mm. behind limbus, needle goes subconjunctively few mm. first in outer upper quadrant of eye. (Spackman.)

REACTION OF STEEL AND COPPER IN EYE

It is well known that the retention of steel in the eye means loss of that eye due to siderosis. Reaction to copper depends on whether it is in pure or in alloy, poor in copper. Due to the fact that Arizona is a copper producing state, we see copper-bearing ore particles in eyes more so here than elsewhere. Copper in pure form sets up a violent inflamation, but causes a copper plating of the eye, causing typical lens effect—sunflower cataract.

After care of intra-ocular foreign body should be the use of the sulfas, antibiotics, foreign protein therapy.

REPORT HISTORY OF HENRY BREIDENBACK

On March 13, 1949, while driving a steel wedge with steel ax, foreign body struck in the right eye. Patient went to doctor but no foreign body was found and patient returned to work. Patient came to see me one month later. X-ray showed two foreign bodies, one in the lid and one as shown by localization to be lower nasal quadrant, right eye, near ora serrata and in exudate visable with ophthalmoscope. After several localizations, giant magnet was used and foreign body brought through suspensory ligament of lens around iris and into anterior cham-

ber and then removed by hand magnet. Examination showed some dis-insertion in area of foreign body removed. Sent to St. Joseph's Hospital and re-attachment operation was performed. Patient sees 20/20 for distance and Jaeger J.

SUMMARY

I have briefly mentioned means of magnetic diagnosis of intra-ocular foreign body, the different routes of removal and outlined briefly a case in St. Joseph's Hospital.

Pin point accurate localization is of utmost importance to avoid unnecessary trauma in removal of intra-ocular foreign body.

The hand and giant magnet each have their indicated field and the Berman Locator should be used to supplement x-ray localization and as a ready guide in extraction of intra-ocular foreign body.

Every patient presenting himself with sudden pain in eye or discomfort in any form following hammering or manipulating metals should have an x-ray. Even though it is negative, it is good evidence later on that this precaution was taken.

THE ANNUAL MEETING

The Fifty-ninth Annual Meeting of the Arizona Medical Association will be held at the Westward Ho Hotel in Phoenix on April 30-May 1, 2 and 3.

The Program has been completed. Guest speakers will be Doctors John M. Waugh of Rochester, Minnesota; Stephen R. Elek of Los Angeles, California; Harry B. Macey of Temple, Texas, and George C. Griffith of Pasadena, California.

In addition to the guest speakers approximately fifteen papers will be presented by members of the State Association.

Following the new arrangement which was started last year, the Meeting will begin on Sunday, April 30. There will be entertainment and golf Sunday afternoon. The Council will hold its first session Sunday afternoon.

The House of Delegates will meet Monday morning and Wednesday morning. Monday afternoon will be given over to the various specialties for sectional meetings. The Opening Exercises and the first scientific meeting will be held on Monday night. The President's Dinner-Dance will be on Tuesday evening.

On Sunday evening the Annual Meeting of the Blue Shield Corporation will be held at the Westward Ho. The Corporation consists of the members of the Council, the House of Delegates, the Board of Directors and officers of Blue Shield.

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Editorials

The Rabies Problem

The problem of *rabies* is not peculiar to Arizona but it is of considerable concern. The hazard to humans from rabid dogs is intensified in certain areas of the state by the contact between dogs and the reservoir of desert animals.

The U. S. Public Health Service believes that the disease can be eliminated, though some authors question the value of the current Pasteur treatment.

About a half million Americans are bitten by dogs each year. Between 30 and 40 thousand individuals are required to take the anti-rabies vaccine. The disease kills from 35 to 50 persons per year. The vaccine causes CNS paralysis in seven or eight of those who take it.

Veterinarians urge the licensing of all dogs; an annual vaccination; impounding and destruction of all strays; quarantine of dogs during a local outbreak; and a trapping program for wild animals.

Dogs may develop the "furious" type of disease with a gregarious, active, vicious conduct lasting a week or so; biting is the method which produces infection from this type. The "dumb" rabies lasts two or three days, is characterized by melancholy, sleepiness, and paralysis, and infection may result from inoculation of saliva into breaks in the skin, when the owner tries to examine or feed the poor beast.

The Arizona attitude conforms to the general practices toward animals and bitten humans.

Dr. Ward of the Arizona State D. of H. believes that vaccination of animals is valuable, though the vaccine is not a perfect one.

Dr. Lewis Howard, health officer of Tucson, goes along with the one-injection prophylaxis for dogs, but is skeptical about the Pasteur treatment for humans—though it prevents worry.

An animal bite should be cleansed with green soap and water, and with an antiseptic. No one has died from rabies or vaccination in Arizona this past year. The dog population is not quarantined at present.

There is a report that an improved vaccine is being sought, and that success is not too remote a possibility.

The Medical Advisory Board

When the late Dr. B. B. Moeur of Tempe was elected Governor of Arizona in 1934 he appointed Dr. Ralph F. Palmer as Medical Director of the State Industrial Commission. A very constructive plan came into operation in the early months of their administration when the Industrial Relations Committee was originated. This committee was set up to consist of four physicians from over the state to be appointed each year by the in-coming president of the Medical Association, with the idea that they would represent the various specialties most likely to be interested in industrial accidents. The president and secretary of the State Association are ex-officio members of the committee. The six physicians and the members of the State Industrial Commission comprise the Industrial Relations Committee. The function of this Committee is to act as a liaison group between the members of the medical profession and the Industrial Commission. The committee has met as often as once a month to handle the various problems which arise pertaining to the disposal of various methods of practice, the adjustment of fees charged which are out of line with the service rendered and the regular fee schedule, the interpretation of the Industrial Law and innumerable routine matters which require medical and legal adjustment. And out of this Industrial Relations Committee has come the Medical Ad-

visory Board, which consists of the four physicians who are appointed each year by the president of the Medical Association. This Medical Advisory Board meets the first Monday of each month, the year around, in the Central Office in Phoenix, and acts as a consulting board for the many cases of injury which have reached the stationary period and the degree of disability must be decided upon and awards made. Many other types of cases are reviewed which require advice as to proper diagnosis, consideration of new and additional evidence of injury, and for final recommendation to the Commission.

Elsewhere in this issue is a report of an Industrial case which reached the State Supreme Court for final settlement and the findings and award made by the Medical Advisory Board were upheld by the Supreme Court. The Court went so far as to approve the work of such a board. It was the contention of the court that such a board would be more able to render an unbiased opinion than any other conceivable method in their knowledge.

Communication

TREASURY DEPARTMENT
BUREAU OF CUSTOMS

Nogales, Arizona

December 28, 1949

Dr. Frank J. Milloy
Secretary, Arizona Medical Association
642 Security Building
Phoenix, Arizona.

Dear Dr. Milloy:

In recent months there has been an increase in the number of cases where it was necessary for this office to seize narcotic drugs which were being imported by doctors of medicine licensed to practice in Arizona, who were returning from visits in Mexico.

These narcotic drugs are carried in medicine kits or baggage by the doctors at the time they leave the United States, at which time their baggage is not inspected. Consequently, it is not until they return that they realize or discover that the drugs have to be seized. There is no intent on their part to violate any law, and in many cases the narcotic drugs are included in their effects in order to meet any emergency that they may run into during their journey.

In many instances the doctor involved lives in some other state, but there have also been several cases involving doctors practicing in Arizona.

It occurs to this office that the loss of these drugs and embarrassment on the part of the doctor involved, as well as to this office, would be, at least to some extent, avoided if the restrictions on the exportation and importation of narcotic drugs by doctors of medicine, as well as others, were brought to the attention of the medical profession. Under the law the exportation and importation of narcotic drugs in any manner and by any person is prohibited except under an export or an import license issued by the Narcotics Control Board.

This office will appreciate any steps which you may take to disseminate this information to the medical profession, especially in Arizona.

Very truly yours,
Signed
Craig Pottinger,
Collector of Customs.

RESOLUTION

The House of Delegates took some very important actions with regard to certain bills pending before Congress, and we have advised the Congressmen to this effect. There follows a copy of the material we sent them. You should supplement this by communicating appropriately with your Senator and Representative, especially if either of them happens to be a member of any of the committees concerned.

* * *

RESOLUTION ON SENATE BILL 1411

(Presented to House of Delegates, American Medical Association, at Washington, D. C., December 6, 1949)

WHEREAS, The House of Delegates of the American Medical Association at the last session adopted a resolution opposing Senate Bill 1411, known as the School Health Services Act; therefore be it

RESOLVED, That the House of Delegates now in session reaffirms its opposition to Senate Bill 1411 and instructs the Board of Trustees to implement the opposition to this legislation by appropriate information to the component societies.

ACTION OF HOUSE OF DELEGATES ON RESOLUTION ON SENATE BILL 1411

The House of Delegates took the following action with reference to S. 1411:

We recommend that this bill in its present form be opposed. On page 6 of the printed bill, Section 6 (a) (1) there are three provisions,

(A), (B) and (C). (A) provides for periodic medical and dental examination of school children; (B) provides that, where indicated, treatment shall be provided "whenever the parents of such children are unable to provide treatment," and these sections are acceptable. Section (C), which permits schools to provide treatment for *all* school children, is an unwise provision and makes it necessary to oppose S. 1411.

NOTICE

The University of Pennsylvania Medical Alumni Society will hold a dinner meeting Wednesday, June 28, 1950 at the Fairmont Hotel in San Francisco, in connection with the convention of the American Medical Association. Cocktails 6:30 p. m. (cash-bar), dinner at 7:30 p. m. All alumni attending the convention are urged to come to the dinner.

PHOENIX CLINICAL CLUB

Massachusetts General Hospital

Case Record No. 31031

December 5, 1949

A twenty-nine-year-old woman was admitted to the hospital complaining of a chronic productive cough and abdominal pain.

Twelve years prior to admission the patient began to suffer with chronic cough. This was often accompanied with fever and was productive at times of as much as a cupful of mucopurulent, foul-smelling sputum a day. The sputum was never blood streaked until a year before entry, when flecks of blood were first noted. The cough and streaking became increasingly severe and were associated with vomiting, often at the end of a paroxysm. On several occasions she vomited intractably for several days at a time. On two occasions she was said to have vomited blood, although at no time did the vomitus have a coffee-grounds appearance. About six months prior to entry a bronchoscopy and lipiodol study were performed, following which she felt better for a few weeks. The blood streaking of the sputum increased, however, until it occurred daily and was most marked in the morning. About three weeks prior to admission she became so exhausted that she was forced to remain in bed; the slightest exertion often induced a severe paroxysm of coughing followed by vomiting. She was able to retain little food, and the tongue and mouth became sore. She had lost about 16 pounds during the year before entry. Five days before admission she developed severe pain under the costal margin in the right upper quadrant, radiating to the epigastrium but not to the back. The pain occurred intermittently in attacks of jaundice. She was admitted to the hospital for study.

The patient had been married for three years but had been unable to become pregnant. She had been a heavy smoker but had cut down considerably in the few months prior to admission.

Physical examination revealed a well-developed and well-nourished woman who did not appear particularly ill. The tongue was beefy red and moderately smooth. The mouth contained numerous small ulcers on the mucous membranes. The lungs revealed only a few medium moist rales at the bases. The heart was negative. There were considerable tenderness and muscle spasm in the right upper quadrant. A tender mass, believed to be the liver, was palpable in this area, extending down almost to the level of the umbilicus; no definite edge could be felt. The spleen was not palpable. There was a lack of precise differentiation between sharp and dull sensations in the lower legs, and some questionable loss of position sense. Vibration sense was diminished in the left lower leg. The deep tendon reflexes were present but the ankle jerks were weak. The plantar responses were not elicited.

The temperature was 99.4°F., the pulse 100, and the respirations 24. The blood pressure was 120 systolic, 80 diastolic.

Examination of the blood showed a white-cell count of 11,200 with 93 per cent neutrophils, 4 per cent monocytes and 3 per cent eosinophils. The hemoglobin was 11.8 gm. The urine had a specific gravity of 1.028, with a two plus test for albumin; the sediment contained a few red cells, 15 white cells and a rare granular cast per high-power field. The stools were brown, and a guaiac test was negative. The serum nonprotein nitrogen was 23 mg. per 100 c.c., the sugar 78 mg., the protein 6.4 gm. and the chloride 94 millieguiv. per liter. The van den Bergh reaction was normal. The prothrombin time was 24 seconds (normal, 18 to 20 seconds). A bromsulfalein test showed 40 per cent retention of dye in forty-five minutes.

A roentgenogram of the chest was within normal limits. A gastrointestinal series revealed displacement of the stomach to the left and downward displacement of the hepatic flexure of the colon, but was otherwise negative. The lower border of the liver was not well demonstrated. An intravenous pyelogram reevaled only a low right kidney. A Graham test was negative.

The patient was given numerous infusions of dextrose in saline together with Vitamin B complex, haliver oil capsules and hykinone. The

white-cell count rose to 25,600, with 79 per cent neutrophils, 11 per cent lymphocytes, 8 per cent monocytes and 2 per cent eosinophils.

On the nineteenth hospital day a laparotomy was performed.

DISCUSSION

Dr. O. O. Williams:

The protocol on the case of this 29-year-old woman presents many problems of contradiction, omission, and perhaps one of commission. The contradictory statements can be summarized as follows: This patiest was stated to be well nourished, yet there was a sixteen-pound loss of weight during the last year. There was likewise considerable vomiting and perhaps a lack of intake of fluid. It seems rather obvious that this patient, if well nouristhed, was rather obese in the early stages of the disease or had taken a fairly high coloric type of diet which did not, however, supply sufficient amounts of the essential nutrition to prevent a vitamin deficiency. Second, there are symptoms and signs of a fairly severe bronchiectasis, though in the x-ray findings nothing was found to substantiate a diagnosis of bronchiectasis. Thirdly, in the physical examination, the patient was stated not to be particularly ill, though her temperature and pulse were slightly elevated and there was a blood count present on two occasions which suggested infection. This indicated that she was considerably sicker than the examiner felt she was.

The sins of omission are the omitted data or the findings of the bronchoscopic examination both by the examiner and by x-ray following lipiodal. In addition there is at no time a red cell count given though the patient was obviously anemic, and thirdly there is no serology reported at any place in the protocol. There are probably other laboratory examinations and perhaps physical findings which were omitted either by not being done or not being included in the protocol. The sin of commission may have been the operative procedure but this will have to wait for the operative findings and the pathological discussion of the pathologist.

It seems to be quite obvious that this patient has had a bronchiectasis since 17 years of age. This is highly suggestive of a congenital bronchiectasis, particularly since no history of a preceding acute pneumonitis was given. Also fairly typical of a bronchiectasis is the fact that the patient received considerable relief from her symptoms of coughing and production of mucopurulent sputum after bronchoscopic examination and lipiodal. The later bleeding and coughing is also fairly characteristic of bronchiectasis. Therefore, in spite of the x-ray findings one would have to assume that chronic bronchiectasis is present though one would feel hesitant about considering an abscess in the absence of x-ray findings.

Another very definite finding was a large mass in the right upper part of the abdomen which shoved the stomach over to the left, and the large intestines and perhaps the kidney downward. This was associated with a 40% retention of bromsulfalein at the end of forty-five minutes. This certainly indicated that something was wrong intrinsically with the liver. The findings of red cells with the 2 plus albumin and a few white cells and granular casts in the urine is suggestive of some renal irritation, perhaps a low grade chronic glomerular nephritis. The chlorides are slightly on the low side though not markedly so. This possibly is the result of protracted vomiting. There are also very vague symptoms of a neurological character, as the lack of precise differentiation between sharp and dull sensation in the lower portions of the leg, questionable loss of position sense and vibration sense and questionable Romberg. These findings do not mean a great deal to me as I know very little about neurology, but it does suggest that the patient was either somewhat apathetic and could not make these fine differentiations or that there is a possibility of polyneuritis. I am unable to discuss this phase of the case.

The important findings are, therefore, a well defined vitamin deficiency, definite liver damage, definite clinical evidence of bronchiectasis, possible neurological findings suggestive of polyneuritis, evidence of a well defined infection as shown by elevated temperature, pulse and leucocytosis and the absence of either clinical or serological evidence of syphilis. In regard to the blood count and serological test, I would be compelled to state that a diagnosis of syphilis and of pernicious anemia, could not possibly be made, in an absence of these studies. Though syphilis is a pleomorphic disease and is stated to mimic almost any condition, I can find no evidence that it was present in this case. Likewise, pernicious anemia shows a decreased white count in most instances, unless accompanied by infection, and surely if suspected a gastric analysis would have been done. Therefore, I am going to dismiss

these two diseases from discussion and attempt to name a few conditions which may have been the cause of this patient's illness, though I realize that diagnosis by exclusion is not the most desirable means of making a differential diagnosis.

The first condition to be discussed, which the patient obviously had, is bronchiectasis. There is something to be said for this condition and that is that a bronchiectatic abscess frequently metastasized to the liver. However, in liver abscesses, the temperature is much higher than in this case and there are usually associated chills and in most instances, jaundice. Against this condition is that there are certainly no x-ray findings of an abscess in the lung and consequently with this lack of pulmonary abscess, one could not consider seriously a metastatic abscess from the lung.

Bronchiectasis is frequently associated with generalized amyloidosis and amyloidosis of the liver. I believe in this case, amyloidosis can be ruled out because of tenderness of the liver, the presence of definite infection and the presence of an acute abdominal condition. There could however, be two conditions present, one acute abdominal and the other a chronic amyloidosis of the liver. However, I do not believe this to be the case. A bronchiogenic carcinoma with metastasis to the liver arising from an adenomatous obstruction to the bronchus is a possibility. The age of the patient is somewhat against this. More convincing evidence, however, is the fact that neither the bronchoscopic examination with lipiodal injection nor the present x-ray findings suggest a mass in the lung.

Myocarditis, with myocardial failure and associated congestion of the liver and lungs is a possibility. We have against this the normal findings of the x-ray, normal blood pressure, no evidence of fluid in the abdomen or in the chest. While myocardial insufficiency might be on the basis of a berberi heart, the x-ray films certainly would have shown some dilitation of the heart or an increase in myocardial shadow. The liver would not become this large early in a case of congestive heart failure. It is also unlikely that there is an obstruction of the hepatic vein causing the so-called Chiari's syndrome. This would be associated with acites and there is no evidence that this patient had fluid in the abdomen.

Now to consider the renal findings. The possibility of a glomerular nephritis is certainly present. However, it is not sufficient to have caused hypertension or evidence of renal failure as the NPN was normal. It is possible that there was a tumor of the kidney, probably hypernephroid in type with diffuse liver metastasis. However, apparently the lungs would have been involved. Also pyelograms show no evidence of any pathological changes other than a low right kidney which might be due to the enlarged mass in the abdomen. While metastatic tumors to the liver will give all the evidence of an infection such as fever, chills and leucocytosis, I do not believe we have sufficient clinical or laboratory findings to indicate any well defined pathology in the kidney itself. There is one other condition which we are compelled to recognize in this club as it is mentioned in practically every discussion, and that is periarteritis nodosa. In this case, with the exception of the bronchiectasis, one can seriously consider a so-called necrotizing arteritis or panarteritis, associated with pleomorphic symptoms polyneuritis and abdominal changes. Neurological findings have been reported as the initial presenting symptoms in many cases of periarteritis nodosa. There are also abdominal episodes which might be considered as a part of the disease. Likewise the kidney lesions could also be considered as a part of the syndrome of periarteritis nodosa. This, however, does not explain the liver insufficiency as well as the liver enlargement. I do not believe that a diagnosis of periarteritis nodosa can be made with any degree of accuracy though the entire lesion may be caused by this condition. Another condition which might be considered is polycystic kidneys associated with an enlarged polycystic liver and even a polycystic pancreas and cysts of lungs. The pyelograms would have been somewhat revealing in polycystic kidneys and most certainly cystic lungs would have been detected by the radiologist. This diagnosis in many instances can not be made without operation as the kidneys may be relatively small. However, there is no definite indication that this patient had polycystic changes in her viscera.

We must of course, come to the primary site of the lesion and that is in the upper right quadrant of the abdomen. We can probably rule out conditions of the gastrointestinal tract such as ulcers of the stomach and duodenum on the basis of negative x-ray findings, though some ulcers might not be shown by x-ray. However, an ulcer would probably have been associated with vomit-

ing of chocolate-colored blood, which this patient did not show. It is not easy to rule out an infection of the gallbladder. However, the Graham test was completely negative, meaning that there was filling of the gallbladder with proper expulsion of the dye and neither positive or negative shadows found in the gallbladder. Primary carcinoma of the liver might be seriously considered as it can occur in this age group though this condition is not likely. The age might be against it but there is also a lack of jaundice or other evidence that the patient may have had a diffuse carcinomatosis of the liver.

The general clinical setup in this case would seem to be that of a vitamin deficiency with fatty degeneration of the liver and subsequent cirrhosis which does occur in such conditions as vitamin deficiency and perhaps alcoholism. Enlargement of the liver is not unusual, particularly in the early stages of a cirrhosis or a fatty degeneration of the liver. Likewise, ascites may be absent early and jaundice may be considerably delayed. With the primary symptom and signs of the condition along with a well-defined evidence of hepatic insufficiency, the obvious presence of vitamin deficiency, one would almost be compelled to come to this conclusion. The patient may have been taking alcohol or other substances which gave high nutritional value, but no vitamins or essential proteins to prevent the development of liver damage.

In recent literature there has been described associated with corrhosis of the liver, a chronic pancreatitis with pancreatic pain. There is considerable to be said against this. There was no amylase determination which probably would have been normal, and we are not definitely assured that this enlarged mass is the liver. The pain is not characteristic of a pancreatitis. There was no definite evidence of shock present and no indication that the patient had rigidity of the abdomen. It would seem, though, that pancreatitis might have been the etiology of the acute abdominal episode.

In summary we have a female, 29 years of age who is apparently well nourished but has taken very little food and vomited quite frequently in the last few months. There is a definite avitaminosis, possible lack of essential proteins, suggestive polyneuritis enlarged liver with decreased function and acute abdominal pain. With these findings in all probability the patient had a cirrhosis of the liver with a complicating pancreatitis.

DIAGNOSIS

1. Cirrhosis of the liver, probably on a vitamin deficiency basis, associated with a chronic pancreatitis. In addition the patient had avitaminosis, probably chronic bronchiectasis, and perhaps polyneuritis.

DIFFERENTIAL DIAGNOSIS

Dr. J. H. Means: "About six months prior to entry a bronchoscopy and lipiodol study were performed, following which she felt better for a few weeks." Are you holding back what was found?

Dr. Benjamin Castleman: That is all that is in the record.

Dr. Chester M. Jones: It was done elsewhere.

Dr. Means: Apparently no Hinton test was done but I do not believe the patient had syphilis. Dr. Holmes has just arrived and I need him. Since time is short, I shall put it up to him this way. If you glance at the first paragraph in the abstract you will see that for twelve years this woman was apparently coughing up purulent sputum, which for a year had often been bloody. She raised as much as a cupful; it smelled bad but later it states that x-ray examination was negative.

Dr. George W. Holmes: That is correct.

Dr. Means: I have a case of tuberculosis in mind in which the x-ray films were reported to be negative for tuberculosis.

Dr. Holmes: That is unusual. About the only time when x-ray films are negative in pulmonary tuberculosis is when the lesion is in the bronchus. You can have an ulcerating lesion in the bronchus with tubercle bacilli in the sputum and a negative x-ray film. You cannot have parenchymal tuberculosis and a negative x-ray film.

Dr. Means: One of the wisest men on diseases of the chest, under whom I was fortunate enough to be a student, was the late Dr. Frederick T. Lord. He said that any patient who had a story of this sort must have a chronic bronchopulmonary suppurative process of some kind. If not in the lung, at least in the bronchus.

Dr. Holmes: Do not let me mislead you. The fact that the x-ray films are negative does not prove that the patient did not have a lesion in the bronchus.

Dr. Means: I know that very well. The an-

swer is that the radiologist cannot necessarily determine a lesion of the bronchus.

According to Dr. Lord's philosophy, if I remember it correctly, this woman ought to have a chronic lung abscess or bronchiectasis. It is too long a history for abscess, however. A lung abscess would have cleared up or would have killed her by that time; therefore it must be bronchiectasis. Dr. Holmes could not demonstrate bronchiectasis, I suppose, if the cavities were empty. Is that correct?

Dr. Holmes: We miss a certain number of cases but this woman's chest is entirely normal. I hardly think that she could have had bronchiectasis.

Dr. Means: How could she have raised a cupful of foul-smelling sputum daily for twelve years and not have had anything in the chest? Had she a fistulous tract that fed pus into the bronchus from somewhere else?

Dr. Holmes: We do not know whether the observation was accurate. The material may have come from the stomach.

Dr. Means: The gastrointestinal tract was reported negative by x-ray study.

Dr. Holmes: The x-ray films do show a large liver.

Dr. Means: I am going to get to that. Let us stick to the thorax for the moment. I was thinking about the esophagus and the bronchus. Are they mixed up with one another or connected in some unholy alliance?

Dr. Holmes: If they are, we have no evidence of it.

Dr. Means: She was said to have vomited blood and, unless it is a perfectly erroneous history, I am forced to conclude, x-ray or no x-ray, that she either had or had had some sort of chronic bronchopulmonary suppurative process. I do not believe that these facts fit with any other interpretation, and a little thing like a negative x-ray should not shake one in one's argument if one thinks that the premises are sound. We are told that she was vomiting. If this was all gastrointestinal in origin it seems to me that Dr. Holmes ought to see something in the gastrointestinal tract beyond a little pushing of the liver in a southeasterly direction. What can you tell about the gastrointestinal tract, Dr. Holmes? Is there anything else besides the pushing down of the liver?

Dr. Holmes: I did this examination myself and that is all I could or can see.

Dr. Means: But you are willing to say that the liver is big.

Dr. Holmes: Yes.

Dr. Means: There have been cases in which the radiologist has said that the liver was big and the clinician has said that it was not big, and Dr. Castleman has found that sometimes the radiologist was right and sometimes the clinician was right. But here both the clinician and the radiologist thought that the liver was big; ergo, I shall say that the liver was big. Of course if the patient had a chronic bronchopulmonary suppurative process with a big liver she is entitled to have had amyloid disease, but I do not think that amyloidosis would explain the acute picture of severe pain in the right upper quadrant.

I have said all I need to say about the lung situation. I do not believe that it was tuberculosis.

In these exercises we usually try to explain the whole picture on the basis of a single underlying disease. We are taught that that is the right thing to do in differential diagnosis. If you stick too rigidly to it, however, you come a "cropper" a certain number of times, because a person can have two diseases. Whether the five-day story of abdominal pain has anything to do with the thoracic story, I do not know. I suppose we should try to relate it, but it does not have to be related. One thing is evident. I am sure that she had an avitaminosis, which explains the stomatitis, the raw red tongue, the sensory changes, the reflex changes and so forth. The clinicians gave her high-powered vitamin therapy, so evidently they thought the same.

On physical examination we are told that this woman was well nourished, although she had lost weight. She might have been overweight to start with. I do not know why she did not look sick. She was said to be exhausted and was forced to stay in bed. Sometimes neurotics take to bed, but she was not neurotic I should say. I do not know whether she had syphilis. There is no reason to suppose that she did. I do not believe that she had tuberculosis of the liver, but she did have a big liver. I once met my Waterloo at a clinicopathological conference in St. Louis because I had a case of big liver and jaundice and asked Dr. Chester M. Jones before I got on the train if I should consider hepatic tuberculosis. He said, "No; it is so rare that

you can forget it." But it was tuberculosis of the liver.

A word or two about the attack. I tried to think of the various possible causes. One should always think of lymphoma, but I do not believe that lymphoma could have explained the picture.

I should like to have more than one body temperature. Was it a septic chart?

Dr. Castleman: No; it was flat, the temperature reaching 99.2°F. on only one occasion.

Dr. Means: This is really difficult—an infectious process without any fever to speak of. I still do not believe that it was cancer. Cancer of what? Of the liver, I suppose. She could not have had cancer of the lung for twelve years, that is sure. Dr. Holmes could find nothing in the lung. If the acute attack was related to the process in the lung, it must have been a process in the lung that was infectious, such as a bronchiectasis. I looked up in some text books to see if there was any kind of suppurative process in the lung that gives rise to suppuration in the liver. I tried to find whether a suppurative bronchopulmonary disease may extend through the diaphragm and cause diaphragmatic abscess, thus dislocating the liver. We are told that it was a big displaced liver. I could not, however, find a word about that in my brief literary studies, so perhaps we cannot connect the two processes.

How about a blood-borne infection from the lung? Could a blood-borne infection get from the lung to the liver? It could through the hepatic artery, I suppose, but it seems extremely unlikely.

Let us see what we can get from the laboratory work. There were no lymphocytes in the first smear. I asked Dr. Wyman Richardson what that meant and he said that it made no sense to him; he added that it probably was a poor smear and that the examiner had counted only 100 cells. He is probably right, so that I am not going any farther with that. He also said that scarcity of lymphocytes was in favor of infection, but 3 per cent of eosinophils was against it. So there we are. They found some lymphocytes the next time, though. The white-cell count was 25,000. This favors an infectious process. The non-protein nitrogen, sugar and protein levels and the van den Bergh reaction were normal. The Chloride was slightly down. The prothrombin time was only slightly elevated, but there was a positive bromsulfalein test. Would you call it an impressive dye retention, Dr. Jones?

Dr. Jones: Forty per cent—yes.

Dr. Means: So I am forced to believe that the liver was sick at least. She had a big sick liver. What kind? Infectious, I think. How much hepatitis can one have without jaundice?

Dr. Jones: A great deal.

Dr. Means: She could have had acute cholecystitis, I suppose. That would fit this five-day story of severe pain at the right costal margin, radiating to the epigastrium but not to the back. It does not have to go into the back. One can have gall-bladder pain intermittently for twelve hours. That part of the story is all right, but with a big sick liver we must infer more than gall-bladder disease. Also the Graham test was negative.

I thought of multiple liver abscesses in some way due to the old infection. I could not find any literary support for that hypothesis or for subdiaphragmatic abscess; but certainly there must have been something acute going on in the region of the liver, because of the acute onset of pain, the mounting white-cell count and the tenderness and spasm over the liver. I am much impressed by the last point.

That is the best that I can do. I mentioned a number of possibilities, some of which I am sure were not present. I believe that she had a chronic bronchiectasis. I believe that all the vomiting in the absence of any positive findings in the gastrointestinal tract ought to be interpreted as the result of terrific coughing. At any rate there is no positive evidence of gastrointestinal disease that permits a diagnosis, so that I shall stick to the facts and say that she had a chronic bronchopulmonary process, probably bronchiectasis of long standing. Did she have clubbed fingers?

Dr. Castleman: No.

Dr. Means: I do not believe that she had cancer, tuberculosis, actinomycosis or lymphoma. I mentioned the possibility of an amyloid liver, but that does not explain the full picture. I am therefore forced to say that she had some kind of infectious process of the liver. Where it came from I do not know. It may have been multiple abscesses. I do not believe that it could have been an amebic abscess.

Dr. Holmes: Were the sinuses examined? It is possible that the pus was coming from the sinuses instead of the lung.

Dr. Means: A patient does not cough up a cupful of foul sputum daily and have symptoms for twelve years from a sinus.

Dr. Helen Pittman: Sinuses feed the bronchi.

Dr. Means: Yes, but there has to be something in the bronchus.

Dr. Pittman: I think that another point that Dr. Holmes brought out, namely, whether anyone saw the sputum, is a good one.

Dr. Means: Well, of course, the whole history may be false, but I have to accept the facts given.

Dr. Castleman: Dr. Meigs, will you tell us about you rimpression?

Dr. J. V. Meigs: This woman's acute illness necessitated a night visit. It was thought to be an acute surgical emergency. When I saw her she did not look so well as this record implies. She appeared extremely sick and was nauseated and vomiting; the white-cell count was 25,000 with 93 per cent neutrophils. She had definite spasm and tenderness in the right abdomen. I could not make a diagnosis, nor did I believe that she was sick enough to warrant immediate surgical operation.

Dr. Means: Did you think that she had intestinal obstruction?

Dr. Meigs: No; I thought that she might have had a chronic rupture of some viscus. There was a mass on the right side. I could not feel the edge of the liver. All I knew was that we ought to get her some place where we could follow her closely. She was brought here. The next morning she looked better and the white-cell count had dropped. I thought that she had some disease connected with the liver. I asked Dr. Jones to see her. We thought that it was some sort of medical problem quite definitely connected with the liver. I did not believe that the pulmonary difficulties had anything to do with it. Dr Richard H. Overholt had bronchoscoped her and found bronchiectasis. Dr. Jones carried on.

Dr. Jones: By the time I saw the patient there was little in the chest except for a few rales, particularly at the right base. We all thought that she had a low-grade bronchiectasis to account for part of the clinical picture, but we did not believe that it had caused the symptoms that brought her to the hospital. She had a large mass, which Dr. Meigs and I both thought was probably a large liver. It was extremely tender for two weeks after admission to the hospital. We could not be certain whether the tenderness was along the hepatic border or underneath the edge of the liver. As she improved, with adequate hydration and rather intensive vitamin therapy for obvious avitaminosis, it became clear that the tender mass actually was liver. The one test that gave us a direct clue was the bromsulfalein test, with 40 per cent dye retention in the absence of jaundice. Dr. Meigs and I decided that the sensible thing to do was to sit tight until she got better and then make absolutely certain that there was no disease besides the intra-hepatic disease. For that reason she was explored.

The patient was explored with the idea that she had a subacute inflammatory, possibly cirrhotic, process in the liver, not necessarily the liver. We simply wanted to make certain.

Dr. Means: The chief point of disagreement between Dr. Jones, who saw the patient and therefore had more information, and me is whether the process in the liver was acute or subacute. There is nothing in the abstract on which I could say that it was other than acute. I did have cirrhosis down here on my list of differential diagnoses but forgot to mention it. You have to think of it because it is a frequent liver disease producing a great variety of pictures and does produce pain and fever. There have been a number of such cases; I recall one in particular, that of a nurse who had acute pain and was rushed to the amphitheater and was operated on, only to find that she had a cirrhosis. Of course I shall have to agree that cirrhosis is a possibility.

CLINICAL DIAGNOSIS

Subacute hepatitis (? cirrhosis).

DR. MEANS' DIAGNOSES

Acute infectious hepatitis (? multiple abscesses, ? cirrhosis).

Chronic bronchiectasis.

Avitaminosis (B complex).

ANATOMICAL DIAGNOSIS

Acute alcoholic hepatitis.

PATHOLOGICAL DISCUSSION

Dr. Castleman: At operation a large fatty liver was found, and biopsy showed the findings that have been described in acute alcoholic hepatitis. It was not actually a cirrhosis, because at this stage there is no actual fibrosis. The liver cells were filled with fat, and many showed the hyaline network described years ago by Dr.

Frank B. Mallory.* This case showed it to an extreme degree and around these areas there was a marked polymorphonuclear infiltration, which may have accounted for the elevated white-cell count. In the later stages of this condition there is a replacement of liver cells by connective tissue and a gradual decrease in the size of the liver to one perhaps a little larger than normal, but rarely smaller than normal.

Dr. Jones: There was a real discrepancy in the history as regards the use of alcohol; I think that it is fair to say that the use of alcohol was not known to be excessive, but it may have been an important factor. Six months before entry—and this is not mentioned in the history—the patient had an episode that was clearly one of acute pellagra and that might have contributed to the development of liver disease when combined with alcohol and other unknown factors. The leukocytosis is not inconsistent with acute liver damage, even on a non-infectious basis—a point not generally recognized. I have seen a white-cell count as high as 35,000 with many immature cells, such as young myelocytes, in patients with rapidly progressing hepatic damage.

It is interesting to add that this patient has been extremely well since leaving the hospital and the liver has receded almost to the costal margin.

Dr. Means: There was no definite history of alcoholism?

Dr. Meigs: No more than cocktail parties all last summer .

*Mallory, F. B. The Principles of Pathologic Histology. Philadelphia: W. B. Saunders Company, 1914, Pp. 504-508.

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TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

The clinical use of AUREOMYCIN is well and currently summarized by Herrell in December 7th proceedings of the staff meetings of the Mayo Clinic. . . . Among the data on absorption, excretion, effects, etc., was one point which seems especially notable—aureomycin readily traverses the blood-brain barrier and diffuses into the cerebrospinal fluid. . . . A useful fact, but also lucky; the drug is too acid to be given intra-thecally.

COMMUNICATION—A query by Dr. Leopold Brahdy of New York, printed in the November column, has evoked a very good reply from an Arizona M. D. . . . Dr. Brahdy had wanted to know (in a letter to "Modern Medicine") why HOSPITALS do not improve TUBERCULOSIS SURVEY METHODS among their EMPLOYEES. He meant all hospitals in all cities, but referred particularly to certain cities (including Tucson) which are known to have a good municipal record straight for his city, as follows—1. St. Mary's Hospital, The Tucson Medical Center, and the Southern Pacific Hospital examine all personnel members by x-ray. St. Mary's has done so for many years, and they re-examine all nurses known to be in contact with cases of tuberculosis at intervals of three months. 2. St. Mary's has had a photoroentgen unit for taking small films of all ambulatory new admissions in use for two years. Tucson Medical Center has a unit on order for the same purpose. The S. P. Hospital is protected by a pre-employment x-ray examination of all employees. . . . This definitely gives Tucson a blue ribbon, and Dr. Brahdy shall hear of it (but there are still quite a few hospitals with less perfect methods).

We are fortunate in having VITAMIN B12 to use in the cases of macrocytic anemia for which it is indicated—but we are also lucky in not having to wait for an explanation of its action before using it. . . . The ingenious work of Castle and colleagues helped to build a theory for the effect of Dr. Minot's use of liver; the place of liver and gastric extracts seemed to fit into the scheme; folic acid disturbed the accepted views; and B12 has forced the entire problem to be re-evaluated. The intrinsic-extrinsic factor relationship is being studied again, and the midnight oil is being burned in Boston and parts west.

It has been suggested that a note be written concerning the difference between REGIME and REGIMEN. . . . A physician would seldom have need to use the term "regime," since by usage it is restricted to a royal rule, or a social or governing system. "Regimen" may have a similar implication, but regimen is the preferred word to be applied to a medical program or system. . . The words also have a separate derivation.

A state newspaper editor, who wants to control tuberculosis in Arizona without paying for it, has told of the use in Japan (compulsory—tch, tch!) of BCG. More than 30,000,000 Nipponese have been vaccinated with the "serum" (sic), and all individuals between birth and 30 years of age required to accept it once a year. . . . It certainly is true that many Arizonans could use the vaccine with profit (provided that the necessary conditions were fulfilled), but it would have no effect on the thousands of residents who now HAVE the disease, are infectious, and who need to be treated as cases and sources.

Although penicillin protects patients with recent rheumatic fever and those who tend to have recurrent purulent bronchial infections, it has not been found to reduce the time-loss from RESPIRATORY or NON-RESPIRATORY ILLNESSES in an industrial group, as reported by Kuh and Cullen.

The TONGUE AND MOUTH form a handy bulletin-board which many, but not all doctors inspect. . . . It may show the signs of systemic infections, intrinsic lesions, deficiencies, allergy, local irritations, C-V disease, relative hydration, psycho neuroses, etc. . . . Medical texts give some help in diagnosis, and a few books on oral medicine are available. . . . The questions which plague physicians most, if one is to judge by the "Queries and Minor Notes" section of the J.A.M.A., are those which have to do with bizarre and chronic subjective sensory changes, and the endlessly recurrent herpetic stomatitis. They are both difficult problems, but can be solved by a careful medical detective.

ANTIHISTAMINE NOTE No. 1—Three Northwestern University allergists have devised a method to indicate the probable effect of AH drugs. . . . Scratches are made on the back; the antihistaminic is applied to the scratch, and then mopped off; histamine is then applied. . . . The degree by which the AH drug prevents skin irritation is the amount of protection to be expected. . . . The test needs more testing.

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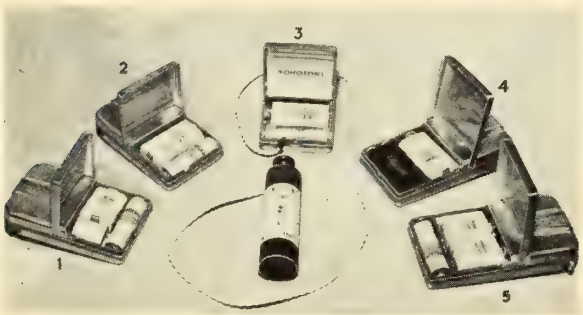
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(ANTI) AH NOTE No. 2.—Itching and burning of the skin, due to a variety of causes, has a new therapy, other than the antihistamine drugs. . . Langley and Morgan of the Guthrie Clinic in Sayre, Pa., report remarkable success from "chloresium," a water soluble chlorophyll in a hydrophilic ointment. . . . Lesions healed in 80 per cent of the cases in which symptoms were controlled by the ointment.

The discovery, about 25 years ago, of the clinical effects of PHEOCHROME, (chromaffin) TUMORS (called pheochromocytomas, chromaffinomas, or paragangliomas) has led to their more occasional recognition. It is the sort of diagnosis which makes one envious, and hopeful. . . . Though the adrenal is the most common site, they may occur elsewhere. Though the carotid body is pheochrome tissue, some of its tumors do not cause the symptoms. Though usually unilateral, the tumors may be bilateral or multiple. Though the hypertensive episodes (and their sequellae) usually are paroxysmal, some cases have a sustained hypertension due to the continuous, excessive release of epinephrine. Though usually benign, they may be malignant. . . . Several clever diagnostic points have now been described—the typical acute and transient attack is most suggestive. An IV injection of adrenalin will cause the syndrome, and a rise in BP. An IV injection of an epinephrine antagonist (benzodioxan) causes a decreased BP—a change which does not occur in essential hypertension. The effect of the "blocking" drug tetra-ethyl ammonium chloride is not certain. An IV injection of histamine produces a hypertensive crisis. Recently mecholyl (methacholin) is said to be superior to histamine, and produces a drop followed by a rise of the BP. The simple cold pressor test produces a rise in BP. Pressor substances may be found in the blood of patients with tumors. It is said that the eye-ground changes are characteristic. . . . This diagnostic armament seems remarkable.

By x-raying the chests of from 300 to 4,000 people at each of 32 STATE AND COUNTY FAIRS in Michigan last year, the mobile units of the Department of Health picked up 485 cases of reinfection tuberculosis. In the total of 51,724 people examined, there were 1,318 chest abnormalities.

Certain NOSE AND THROAT SPECIALISTS bear a heavy burden in their Tantalus-like efforts to protect the public. No sooner does silver nitrate and its argyria hazard pass by, than oily nose-drops are found to produce lipoid pneumonia. As oil becomes outmoded as a vehicle, the use of aqueous and saline medications are shown to be over-used and harmful. Then along comes the aromatic "inhalers" with their habit formation. . . . Dr. Noah Fabricant has summarized the ill-effects of decongestants, which may result in an eventual congestion, with destruction of mucosal form and function. . . . He believes that the current needs are for an abuse-proof liquid sympathomimetic amine, and a method of giving small measured amounts to prevent over-dosage. . . . The latter hope has possibly been realized in the form of an ejectant device now on the market.

Most everyone can look back to a brief brush with PATHOLOGY, or at least a memory of hundreds of containers and dyes which were used for THE PROCESSING OF TISSUES. . . . It is pleasing and surprising to see progress in this laborious field; the laboratory journals now carry advertising for an "autotechnicon" which can be set to fix, dehydrate, wash, stain, and deliver finished tissues — all without the need of human hands or attention.

POLITICS No. 1.—The State and Territorial Health Officers who recently expressed disapproval of the proposed compulsory health insurance laws really showed courage. Their big boss, whose guests they were in Washington, was Oscar Ewing of the FSA. They pointed out the high standards of health and the progress of sanitation and preventive medicine in the U. S. This is more than honesty and sincerity.

POLITICS No. 2.—Figuring-all-the-angles Dept. —"National health insurance would automatically give to every man, woman, and child the status of a 'good paying' patient. In all this I do not see how the retail druggist can fail to profit enormously." An address before the National Association of Retail Druggists, by Oscar Ewing.

POLITICS No. 3.—Dr. Lull of the A.M.A. has recently replied, in an interview, that the A.M.A. is NOT antagonistic in the correction of national health deficiencies. . . . Actually the Society is only against compulsory health insurance. It is FOR the hospital construction act, the federal grants to local health units, federal aid to medical education, the National Research Foundation, the World Health Organization, and voluntary insurance plans.

Almost everyone can remember seeing cases of DIABETIC COMA which responded to therapy, with a cleared ketosis and a lessened hyperglycemia, but which again became weak and stuporous, and sometimes died. The cause was usually laid to a vagary of insulin, or a strange pancreas. . . . It is now certain that at least some of those cases suffered from a HYPOPOTASSEMIA (hypokalemia). Several factors may cause potassium to be released and excreted during diabetic therapy, and the effect is a depression of voluntary and cardiac function, and an upset of the water balance. . . . Therapy should include use of insulin against the ketosis (possible with-

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out addition of CH during the early stages) and the exhibition of potassium (KCL in broth) or potassium-containing foods (orange juice or oatmeal gruel).

ADRENAL CORTEX NOTES.—Cortisone is becoming available in larger amounts, at just about the time which was predicted six months ago. . . The material is synthesized, though not simply, and now costs about $15 per day. It is still in limited supply, and the further study of its effects must be made on those who can afford it, or on the endowed. . . . Rosenberg of Michael Reese Hospital, Chicago, reports the effectiveness of Compound F, another hormone of the adrenal cortex. The disadvantage is that it can currently be made only from Compound E. It was also first isolated by Kendall. . . . Incidentally, the Arthritis and Rheumatism Foundation deflated a senseless report that the various hormones were producing serious endocrine imbalances. As stated in this column many months ago, any side effects (chiefly from excessive dosage) are moderate and transient, receding shortly after the use has ceased.

A solution of the problem presented by the scarce and big-molecule ACTH may be in sight. Dr. C. H. Li of Berkeley has broken ACTH into several peptides which are only a twentieth of the molecular weight of their parent. . . . Dr. L. W. Kinsell, also of the U. of Calif., has shown that one of them is a potent stimulator of the adrenal cortex, and has the same effect on arthritis as does ACTH and cortisone. . . . The big obstacle is synthesis, but it should be easier to make a little one than a big one.

Somewhere along the way we got lost. The directions now read as follows—Alcoholism has an allergy-like character; this status is intimately associated with a hypoadrenocorticism; correction of the deficiency is theoretically sound in approach, and is justified by clinical results, since chronic alcoholism may be controlled by use of adrenal cortical hormone. . . . The authors are Tintera and Lovell of New York. (This column does not guarantee either the theory or the results).

WHAT'S IN A TITLE?—An article in the Journal of Gerontology, October 1949, by R. J. Havighurst—"Old Age; an American Problem."

It will be interesting to observe the future of a therapy for MALIGNANT HYPERTENSION, proposed by Page and Taylor of Cleveland in a new publication on cardiovascular disease. . . . (Page discovered a material eight or nine years ago which counteracted the pressor substance which was elaborated by the kidneys, but the early high hopes for it have not been upheld). . . The new therapy consists of five or six intravenous injections a week of a soluble bacterial pyrogen called "Pyromen." The original kidney function must be suitable, and an improvement of the function as well as a lowering of the blood pressure occur in three to six months. The symptoms of fever may be controlled by aspirin, barbiturates, etc. . . . About half of a series of this usually fatal condition were reversed in their course. Of the fatal results, each died of stroke rather than progress of the renal disease.

ARIZONA MEDICINE has now had a "case-analysis" department for three years. The idea has served to bring topical subjects to the readers, has solved several difficult cases, and has brought to our state literature from two dozen authors from outside of Arizona. . . . If one is a lion-hunter, the bag of such "lions" would please Teddy Roosevelt, or the head of a lecture bureau. They have been obtained from east to west and north to south of the United States; they have included professors, editors, authors presidents of medical societies, and instructors on the way up; and they have been almost uniformly good. We are lucky, and people are very kind!

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IN THE SUPREME COURT OF THE STATE OF ARIZONA

R. L. ISON,
Petitioner,
- v -
WESTERN VEGETABLE DISTRIBUTORS, Defendant Employer,
THE INDUSTRIAL COMMISSION OF ARIZONA, Defendant Insurance Carrier,
Respondents.

No. 3732

Appeal by Certiorari from an Award of The Industrial Commission of Arizona.

Award Affirmed.

Terrence A. Carson, Attorney for Petitioner, Emil Wachtel (of council) of Phoenix.
Don C. Babbitt, Howard A. Twitty, of Phoenix, Attorneys for Respondent Industrial Commission.

LOCKWOOD, C. J.:

This is an appeal from an award of the Industrial Commission of Arizona, hereinafter called the commission, denying compensation to R. L. Ison, hereinafter called the petitioner, for injuries which the latter alleges he received as the result of an accident arising out of and in the course of his employment. The commission made the following finding, which was challenged by the appeal:

> "That the evidence is insufficient to establish that said applicant sustained any injury by accident arising out of and in the course of his said employment on or about said date; and the evidence is further insufficient to establish that the disability from which said applicant alleges to be suffering is proximately the result of accident."

This finding is, in reality, a finding upon two issues of fact; the first being that the evidence is insufficient to show the accident upon which the petitioner relies happened; and, second, that even assuming there was an accident, the evidence is insufficient to show that the disability from which the petitioner admittedly has suffered, was caused by the accident. We must, therefore, consider the testimony in the case and in so doing, are bound to apply the rule to which we have adhered consistently, that if there is reasonable evidence sustaining the award of the commission, this court will not set it aside.

We consider first the evidence in regard to the alleged accident. It is the contention of petitioner that while he was engaged in putting tops on certain lettuce crates by means of an electric lidding press, a crate on which he was working was ejected from the press in such a manner as to hit him a severe blow upon the chest, and that as a result of such accident his lung became abscessed, so that he lost four months' work. In support of the fact that the accident did occur, we have the testimony of the petitioner himself, the affidavit of one James P. Brown who apparently saw the crate hit petitioner, the testimony of the witness Akin, who did not actually see the accident but saw the crate of lettuce scattered over the floor immediately after the accident was said to have occurred and heard petitioner complain the next day of being hit; and the testimony of witnesses Roach and Sprankle, who also heard petitioner complain of the accident the day after it happened. As opposed to this, we have the statement of the employer's foreman, who said that while he heard the petitioner claim his side hurt him shortly after the accident, he did not state that the pain was caused by the accident until the time when he went to the hospital, nearly thirty days after the alleged accident. On this evidence, was the commission justified in the finding that it was not proved the accident occurred?

We have held that in view of the interest of an applicant for compensation, the commission is not required, as a matter of law, to accept his uncorroborated testimony in regard to an accident; Davis v. Industrial Commission (Ariz.) 49 Pac. (2d) 394. But we have also held in several civil cases, and we think the same rule applies to compensation cases, that triers of fact may not disregard the undisputed testimony of witnesses who have no interest in the matter, unless their testimony is unreasonable or im-

peached by some of the circumstances of the case; Otero v. Soto, 34 Ariz. 87,267 Pac. 947; Equitable Life, etc. v. De Johnson, 36 Ariz. 428, 286 Pac. 817. Applying this last rule, we think the commission was not justified in disregarding the affidavit of Brown which is, in substance, that he saw the accident occur, especially when corroborated by the testimony of the other witnesses in regard to the complaints made by petitioner shortly after the accident. We hold, therefore, that the finding that there was insufficient evidence to show that the petitioner was injured by an accident arising out of and in the course of his employment on April 9, 1935, is not sustained by the record.

We consider next the question of whether any disability arose from the accident and injury. It is not every accident nor every injury arising from an accident which is compensable. The theory of the law is that it is only injuries which produce financial loss to the injured party that are compensable; sections 1421, 1439, R. C. 1929. The petitioner claims compensation for loss of time which he alleged was caused by the accident and injury. It is admitted that he was compelled to go to the hospital for a chest affection on April 25th, and that by reason of such affection he lost about four months' time from his work, being apparently perfectly recovered after that period. The question then is, was the condition which caused his hospitalization and subsequent loss of time caused by the accident of April 9th? Like most cases, where the injury is not an immediate and patent one, such as the loss of a member or a broken limb, the question of causal relation between the accident and the disability depends upon expert medical testimony. Two expert medical witnesses gave evidence on this point, Dr. Fred G. Holmes and Dr. Coit I. Hughes, both of them thoroughly qualified physicians. Dr. Hughes first saw petitioner on April 25th. After examination, he sent him to a hospital, and diagnosed his case as being a ruptured blood vessel in the lung which had produced a clot of blood, blocking a bronchial tube, which eventually resulted in an abscess of the tube. He judged, from the history of the case given him by the patient, that the original cause of the lung condition was the blow received from the crate of lettuce on April 9th. Dr. Holmes examined the patient some time later, but prior to June 18th. He also examined the x-rays taken of the patient while he was in the hospital, and had other x-rays taken at the time of the physical examination made by him, and secured a full history of the case. He made a very full report, which was characterized by Dr. Hughes as being very fair, and reached the following conclusion:

> "It would seem that all of the symptoms in this case would be adequately explained by a pneumonia with possible small abscess formation starting the latter part of April and concluding after eight days in the hospital. His pain on taking a deep breath is undoubtedly due to some lung adhesion on this side following this condition. Whether one may in any way ascribe this pneumonia with probable lung abscess to his accident on April 10th, is difficult to say. If the history as obtained is correct that he did not show any sickness from April 10th to April 28th, it would seem that eighteen days intervened before his pneumonia. A pneumonia following a severe contusion to the chest is possible but quite rare. However, such a pneumonia would be expected to supervene within three or four days or at most a week. It is felt that pneumonia is usually due to a plug in a bronchus and there is no reason to think that such a plug should wait for several weeks to form. It is very rare to find an abscess formation following an injury to the chest. Any injury to the chest which is not sufficiently severe to stop him from working would be most improbable as a cause of a pneumonia two weeks later. One cannot absolutely exclude an old tuberculosis in this case, but I believe that all of the symptoms and findings can be just as well accounted for as following his acute pneumonia with probable lung abscess early in May."

It will be seen by this that Dr. Holmes agreed with Dr. Hughes in diagnosing petitioner's trouble as a lung abscess, but concluded that it was very improbable that it was caused by the blow on the chest of April 9th. We have, therefore, the opinion of two reputable physicians in direct conflict as to whether it appeared affirmatively that the abscess was the result of the blow. It is, of course, the law that the petitioner must establish his case by a preponderance of the evidence upon every material point in compensation cases in the same manner as the plaintiff in civil actions; Ocean Accident & Guarantee Corp., 32 Ariz. 265, 257 Pac. 641; Johnson v. Industrial Comm., 35 Ariz. 19, 274 Pac. 161. Preponderance of the evidence means such evidence as when weighed with that opposed to it has more convincing force, and from which it results that a greater probability is in favor of the party upon

whom the burden rests. It does not necessarily depend upon the number of witnesses; it merely means that the testimony which points to one conclusion appears to the trier of facts to be more credible than the testimony which points to the opposite one. *The capacity of the submitted testimony to enforce belief on the arbiter to whom it is submitted is the touchstone of preponderance as applied to the testimony of witnesses.* With this rule for our guidance, can we say affirmatively that the preponderance of the evidence as to the causal connection between the accident and the bronchial abscess is, as a matter of law, with the petitioner? Obviously, when two equally honest and experienced expert witnesses reach opposite conclusions, the only thing the trier of fact can do is to decide which one of these witnesses is more probably correct in his conclusion. In so doing, he may take into consideration the experience of the witnesses in diagnoses of ailments of the kind under consideration, and their interest or bias, conscious or unconscious, in the result to be reached. Applying these rules, we think it is clear to any fair-minded layman that it cannot be said affirmatively that, as a matter of law, it was the duty of the commission to accept the opinion of one medical witness over that of the other. Such being the case, we are bound by the conclusion which it has reached as to which witness was more probably correct. It is urged that the testimony of one physician is positive that the injury caused the abscess, while the other merely states that it was extremely probable that it did not, and that the commission should, therefore, have accepted the positive testimony over that which was merely conjecture. There might be some merit in this contention if the point at issue was one which was subject to positive knowledge, such as the presence or absence of a certain person, a collision between two automobiles, or other similar matters, but the question is necessarily one of opinion and not of knowledge, and when this is so, the fact that one opinion is expressed more positively than the other, does not, as a matter of law, require that a trier of fact give it more weight. We are compelled to hold, therefore, that the conclusion of the commission that it does not appear affirmatively that there was any causal connection between the accident of April 9th and the disability from which petitioner admittedly suffered, must be upheld.

The next question, however, and one which is of first impression in this state, is whether or not the petitioner has been denied that due process of law guaranteed him by the 14th Amendment to the Constitution of the United States. Petitioner's position on this point apparently is that the Industrial Commission of Arizona, by reason of the fact that in addition to its duties of making awards in cases where compensation is asked, it is also charged with the care and custody of the state compensation fund, cannot be, within the meaning of the constitutional provision referred to, that fair and impartial tribunal which every man is entitled to in determining his legal rights. In support of this contention, petitioner relies primarily upon two federal cases, the first being that of Tumey v. Ohio, 71 L. Ed. 749, 273 U. S. 509, 51 A. L. R. 243, and the second that of Ohio Valley Water Co. v. Avon Borough, 64, L. Ed. 908, 253 U. S. 237. In the first case the situation was substantially as follows: Under the statutes of Ohio, the mayors of certain villages were given jurisdiction to try cases involving a violation of the prohibition act of the state. In case of a conviction, the mayor was paid the amount of his costs as taxed under the statute, but in case of an acquittal, he received no fee. The fines collected were paid, half to the general revenue fund of the state, and the other half to the general fund of the Municipality. Error lay from the mayor's court to the court of common pleas of the county, but the review in that court in respect to evidence was such that the judgment could only be set aside if the evidence was insufficient to the extent that it indicated prejudice or bias on the part of the trial court. The Supreme Court of the United States, in passing on the question, said as follows:

> "From this review we conclude that a system by which an inferior judge is paid for his service only when he convicts the defendant, has not become so imbedded by custom in the general practice either at common law or in this country that it can be regarded as due process of law unless the costs usually imposed are so small that they may be properly ignored as within the maxim de minimis non curat lex. The mayor received for his fees and costs in the present case $12, and from such costs under the prohibition act for seven months he made about $100 a month, in addition to his salary. We cannot regard the prospect of receipt or loss of such an emolument in each case as a minute, remote, trifling or insignificant interest. It is certainly not fair to each

defendant brought before the mayor for the careful and judicial consideration of his guilt or innocence that the prospect of such a prospective loss by the mayor should weigh against his acquittal. But the pecuniary interest of the mayor in the result of his judgment is not the only reason for holding that due process of law is denied to the defendant here. ***The mayor is the chief executive of the village. He supervises all the other executive officers. He is charged with the business of looking after the finances of the village. It appears from the evidence in this case, and would be plain if the evidence did not show it, that the law is calculated to awaken the interest of all those in the village charged with the responsibility of raising the public money and expending it, in the pecuniarily successful conduct of such a court. The mayor represents the village and cannot escape his representative capacity."

In the Ohio Valley Water Company case, a state public service commission was given the power to fix the value of the water company's property for rate making purposes, and while an appeal was granted to the superior court, it was held by the Supreme Court of Pennsylvania that such court had no right to substitute its own independent judgment on the valuation for that of the superior court, but was confined to considering whether there was any reasonable evidence sustaining the finding of the commission. The majority opinion of the Supreme Court of the United States held:

"Looking at the entire opinion we are compelled to conclude that the Supreme Court interpreted the statute as withholding from the courts power to determine the question of confiscation according to their own independent judgment when the action of the Commission comes to be considered on appeal. The order here involved prescribed a complete schedule of maximum future rates and was legislative in character. Prentis v. Atlantic Coast Line R. Co., 211 U. S. 210, 53 L. Ed. 150, 29 Sup. Ct. Rep. 67; Lake Erie & W. R. Co. v. State Public Utility Commission, 249 U. S. 422, 424, 63 L. Ed. 664, 687, P. U. R. 1919D, 459, 39 Sup. Ct. Rep. 345. In all such cases, if the owner claims confiscation of his property will result, the state must provide a fair opportunity for submitting that issue to a judicial tribunal for determination upon its own independent judgment as to both law and facts; otherwise the order is void because in conflict with the due process clause, 14th Amendment."

It thus appears that the situation upon which the two opinions cited by petitioner were rendered differed greatly from that found in the present case, both as to the facts and the legal issues arising from such facts. In both of the cited cases, the appellant was in the position of a defendant against an action by the opposite party; in the first case defending against a criminal prosecution, and in the second case defending against a valuation of its property which would necessarily greatly lessen its income. In the present case, the petitioner was not brought before the commission against his will, nor by any act on its part. He invoked its jurisdiction voluntarily, for the purpose of securing from it an affirmation of an alleged right, created by the same act which made the commission the judge as to whether such right existed in a particular case. It is the general rule of law that when a party invokes the benefit of a statute, he may not, in one and the same breath, claim a right granted by it and reject the terms upon which the right is granted; Tovrea Packing Co. v. Livestock Sanitary Board, (Ariz.) 34 Pac. (2d) 420. Our compensation act is elective so far as the workman is concerned, he may either claim compensation under the terms of the statute, or may reject it and rely upon his common law action of negligence or, if he prefers, he may proceed under the employer's liability law described in section 7, Art. XVIII of the Constitution of Arizona. It is true that the employer has no right of election and to such an extent the law is not a voluntary one, but it is very generally held that an employer may not claim an act to be unconstitutional upon grounds which affect only an employee, and we think in reason and common sense the converse applies, so that the employee cannot claim that an act is unconstitutional as to him merely because it might be as to the employer. The Supreme Court of the United States, in the case of Booth Fisheries Co. v. Industrial Commission, 271 U. S. 208, 70 L. Ed. 908, in discussing the very point under consideration at the present time, says as follows:

"It is argued that the employer in a suit for compensation under the act is entitled under the 14th Amendment to his day in court, and that he does not accrue it unless he may submit to a court the question of the preponderance of the evidence on the issue raised. A complete answer to this claim is found in the elective or voluntary character of the Wisconsin Compensation Act. If the employer elects not to accept the provisions of the com-

pensation act, he is not bound to respond in a proceeding before the Industrial Commission under the act, but may await a suit for damages for injuries or wrongful death by the person claiming recovery therefor, and make his defense at law before a court in which the issues of fact and law are to be tried by jury. In view of such an opportunity for choice, the employer who elects to accept the law may not complain that in the plan for assessing the employer's compensation for injury sustained, there is no particular form of judicial review. This is clearly settled by the decision of this court in Hawkins v. Bleakly, 243 U. S. 210, 216, 61 L. Ed. 678, 684, 37 Sup. Ct. Rep. 355, Ann. Cas. 1917D, 637, 13 N. C. C. A. 959. More than this, the employer in this case having elected to accept the provisions of the law, and such benefits and immunities as it gives, may not escape its burdens by asserting that it is unconstitutional. The election is a waiver and stops such complaint. Daniels v. Tearney, 102, U. S. 415, 26 L. Ed. 187; Grand Rapids & I. R. Co. v. Osborn, 193 U. S. 17, 48 L. Ed. 598, 24 Sup. Ct. Rep. 310. The counsel for the plaintiff in error relies chiefly on the case of Ohio Valley Water Co. v. Ben Avon Borough, 283 U. S., 287, Cal. Ed. 903, F. U. R. 1920E, 814, 40 Sup. Ct. Rep. 527. That case does not apply. An order of a public service commission in fixing maximum rates for a water company was there attacked on the ground that the rates fixed were confiscatory. It was held that the law creating the commission which had operated to withhold an opportunity for appeal to the courts to determine the question, as a matter of fact and law, whether the rates were confiscatory could not be sustained, and was in conflict with the due process clause of the 14th Amendment. But in that case, the water company was denied opportunity to resort to a court to test the question of the confiscatory character of its rates and of its right to earn an adequate income. Here the employer was given an election to defend against a full court proceeding but accepted the alternative of the Compensation Act."

We are of the opinion that, applying the reasoning of the Booth case to the present case, petitioner is not in a position to question whether that provision of the compensation law, giving to the Industrial Commission the jurisdiction to sit in a quasi-judicial capacity for the purpose of determining whether a given case falls within the terms of the law, is in contravention of the 14th Amendment to the Constitution of the United States.

But assuming, for the purpose of argument only, that the petitioner may question the constitutionality of that feature of the law to which

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we have just referred, on the ground that the Industrial Commission as created by the statute is not, within the meaning of the 14th Amendment, a fair and impartial tribunal, let us examine the situation to see whether his claim is justified. It is, of course, generally true that officers acting in a judicial or quasi-judicial capacity are disqualified by their interest in a controversy to be decided from sitting therein, Tumey Ohio, supra. But it is frequently a close question as to what the degree or nature of the interest which would disqualify a judge must be. It is not always that the question of judicial qualification involves the constitutional validity of a law. For example, matters of relationship with the parties, or general state policy are generally held to be questions of legislative discretion, not rendering a judge constitutionally incompetent to try a case. So personal, substantial, pecuniary interest in reaching a conclusion against a litigant that it is held the due process provision of the constitution is violated by permitting him to act, and even in such circumstances, if there is no other judge with jurisdiction to determine the question at issue, it is sometimes held that interest of the nature just referred to does not constitutionally disqualify a judge, Tumey v. Ohio, supra. In the present case, if the Industrial Commission may not hear and determine compensation cases, there is no tribunal authorized under the law of Arizona to do so, and the whole act is inoperative, and those claimants justly entitled to compensation will be unable to obtain it. We think this alone would be sufficient to cause us to determine that the act is not unconstitutional on the ground set up by petitioner.

But going a step further, what is the nature of that interest of the commission which it is claimed constitutionally disqualifies it from hearing compensation cases? The three members of the Industrial Commission are appointed by the Governor, by and with the consent of the Senate, and are removable by him for cause. We must presume he will choose honest, intelligent and competent commissioners or that, if inadvertently he has been in error in his judgment that his appointees possess such qualifications, he will exercise his power of removal, for the law assumes public officers will do their duty. Such being the presumption, have such commissioners "a direct, personal, substantial, pecuniary interest" in reaching a conclusion that claimants are not entitled to compensation? The salaries of the commissioners are neither increased nor diminished by any conclusion they may reach in regard to the payment of compensation. The state compensation fund is not raised by taxation upon the property of citizens in general. It comes from an annual assessment upon the pay-rolls of the various employers who are protected by the fund, the rate to be fixed by the commission so that the fund will be self-supporting and no more; sections 1413 and 1427 R. C. 1928. The only interest which any commissioner could, by the wildest flight of imagination, be conceived to have denying compensation to one entitled by law to receive it, is a desire to satisfy the employing class of the state by keeping the pay-roll assessment low. On the other hand, it might well be said there is an equal inducement to satisfy the more numerous employee class by making awards more liberal than the law permits. We think it is plain it cannot be presumed an honest commissioner would be biased by either motive. So far as we can see, a tribunal selected in the manner the law directs the commission to be chosen, will presumably be as impartial in making decisions as any other which could be established. As in all cases, assuming him to be honest, the character, temperament and general social point of view of the individual and disinterested trier of fact, be he commissioner, judge or juror, always will be the final determinant of the result which he will reach in a given case, if the evidence is doubtful or close, and this is something which cannot be changed nor prevented by any conceivable law.

It is urged that the commission has shown clearly by its past record that it will invariably accept the testimony of its own medical advisor and its medical rating board as against the opinion of the medical witnesses appearing for a claimant, and that this fact establishes definitely that it is not a fair and impartial tribunal, but is biased and prejudiced. Whether this alleged attitude of the commission exists in all cases which come before it, we have no means of knowing, but it does appear from the cases which have come before us that such is its general custom. We think, however, assuming that fact to be true, there is perhaps a reason therefor which has not been fully considered by those who contend this practice shows bias and prejudice against a claimant. It must be presumed the

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commission chooses a medical advisor because its members have confidence in his integrity and ability, for if the commissioners are honest men themselves, these above all things are the qualifications which they will necessarily desire in a medical advisor. He is upon a fixed salary, and certainly has no pecuniary interest in either advising that compensation be granted or that it be denied, for his income is in no way affected by the award made by the commission. The medical rating board, which is apparently the final medical authority whose opinion in doubtful cases the commission is apt to take, even in preference to that of its own chosen advisor, is selected in a manner entirely different. The president of the Arizona Medical Association selects a number of specialists in the various lines of medicine and surgery, in accordance with his judgment, to be the permanent Industrial Relations Committee of the Association, and this committee is requested by the commission to act as a medical rating board. These experts meet from time to time to examine these claimants concerning whose condition and right to compensation there is doubt, from a medical standpoint. Their compensation for so doing is fixed by and paid by the commission, regardless of the nature of their recommendations. It seems to us beyond any reasonable probability that a board composed as we know from the frequent reports which we have examined, of men of the very highest standing in their chosen profession, would render a report based on anything but their honest opinion and their best skill. And it appears that any tendency on the part of the commission to accept the professional opinion of such experts rather than that of other experts who, though of equal standing in the profession, in most cases are dependent on an award being made to the claimant for compensation for their services, and who have been selected as witnesses only after the claimant has ascertained their testimony will support his claim, is explained reasonably on the theory that the commission believes a witness who has an interest in the result of a case and has been called because the party knows in advance his testimony will be favorable, is more apt to be biased, even unconsciously, and therefore mistaken in his judgment, than one who has no financial interest in the nature of the award, and is not chosen because of a previously expressed opinion in the instant case, but whose testimony will be used in all cases which he examines, regardless of whether it favor a claimant or not.

The testimony of expert witnesses selected and paid for by the litigants is so notoriously unreliable that it has even passed into a proverb, and the positive, comparative and superlative degrees of prevaricators are frequently illustrated by "the liar the ——— liar, and the expert witness." This fact has been recognized by our legislature, and it has provided, in substance, that in civil actions for personal injuries the court may select expert medical witnesses to examine the injured party and to testify concerning his condition. Section 4468, R. C. 1928. Certainly under all these circumstances, we cannot say the fact that the commission believes the experts not chosen by the interested party rather than the ones he has selected shows, as a matter of law, that as a trier of fact it is not fair and impartial. We realize that all men are liable to error at time, and we have no doubt that there have been cases where the medical advisor of the commission, the medical rating board, and the commission itself have made mistakes, but in view of all those things which we have set forth, we think that to hold the method of choosing expert advisors, such as the commission has adopted, and its habit of believing such advisors, is a denial of due process of law and of a fair and impartial hearing, would be without any base in reason or probability.

Finally assuming, solely for the purpose of argument and without any intimation on our part that it be true as a matter of fact, that everything that petitioner in this case asserted or even suggested in regard to the commission is true; that its awards are, in many cases, unfair to claimants; that it willfully and even maliciously and corruptly is seeking to deny just compensation where it is due, we think it is evident from our review of the method of choosing the commission, its powers, duties and interest, and its method of determing which witnesses should be believed, that the trouble is not with the *system* established by law and by the rules of the commission, but solely with the individual commissioners, and that petitioner's charges, in effect, are that the commissioners themselves are wholly unfit, either by temperament or character, to hold the positions which they occupy. If these charges are true, and of course we express no opinion in regard to that matter, the remedy is political and not legal. It

is not the system which should be changed but the individuals who administer it. If an individual judge is incompetent or corrupt, we do not, on that account, attack the organization of the courts; we remove the individual and secure a better man.

We hold, therefore, that the petitioner in this case has had an opportunity to present his claim before a tribunal which, in its essential nature, is presumably fair and impartial, and which is not disqualified by any interest from sitting on compensation cases. Whether a mistake has been made in the conclusion which the commission has reached on conflicting evidence in the present case, is not within our province to determine.

The award is affirmed.

ALFRED C. LOCKWOOD,
Chief Justice.

Concurring:

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Judge

HENRY D. ROSS
Judge

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REPORT
Public Relations Conference
AMERICAN MEDICAL ASSOCIATION, CHICAGO, ILLINOIS

M. W. Merrill, M. D., Chairman
Health Activities Board
Arizona Medical Association

The second annual public relations conference, national in scope, called by the A.M.A., was held in Chicago on November 5 and 6, 1949. Some of the meetings were held at the A.M.A. headquarters and the remainder of them at the Bismarck Hotel.

The first Public Relations Conference was held last year at Saint Louis. It was well attended and was an excellent conference. Many valuable ideas for use in public relations by state societies were brought out in this conference. This year's meeting was also very well attended, approximately 250 doctors, executive secretaries and others interested from all over the United States were in attendance. The meeting was called to order at 9:30 a. m., November 5 by Lawrence W. Rember, who is the Public Relations Director of the American Medical Association. He introduced Dr. George F. Lull, Secretary and General Manager of the American Medical Association, who briefly addressed the various members present, welcoming them to the convention. Following this Mr. Rember gave a few comments as to the purpose of the meeting and the meeting was then turned over for the morning program to Dr. Max M. Hattaway, who is Chairman of the Council on Medical Service and Public Relations of the Louisiana State Medical Society. Dr. Hattaway acted as the Moderator and Chairman of the morning session.

The general subject of the morning session was "Organizing For An Overall Public Relations Program." Dr. Donald B. Koonce, who is Chairman of the Public Relations Committee of the North Carolina Medical Society, gave the history of the development of the public relations program, in the state of North Carolina. The topic of his subject was "Organizing The State Public Relations Program at District and County Levels." Dr. Koonce pointed out how, in the brief past two-year period, they have increased in their state medical society their appropriation for public relations from $600.00 to $30,000.00. North Carolina has a very excellent program outlined. The basis of their program is the contacting of every doctor individually in his office and selling him on the need for an active public relations program. In addition to this they have many other excellent projects with the state of North Carolina really doing a "bang-up" job, in promoting their public relations program.

The second subject of the morning was discussed by Dr. Percy E. Hopkins, who is chairman of the Committee on Medical Service and Public Relations of the Illinois State Medical Society. His discussion was on working with all other committees of the state society. Dr. Hopkins pointed out the necessity, particularly in the larger state societies, where they have a great number of committees doing work, for the public relations committee to keep in close contact at all times with the work of the other committees. First, to prevent overlapping and, secondly, to utilize the work of the other committees, whenever possible, in the public relations program. Illinois has an excellent public relations program and they are "on the ball" at all times keeping it rolling.

Dr. Charles L. Farrell, Chairman of the Committee on Public Policy and Relations of the Rhode Island Medical Society then talked on the "Cooperation Desired by Public Relations Committees from State Society and A.M.A. Headquarters." Dr. Farrell discussed the importance of a close cooperation between the Executive Secretaries of the State Medical Associations and the public relations committees. He also stressed the importance of carrying the public relations program to each county society. He stressed particularly the importance of securing the cooperation of the presidents and secretaries of the various county components of the state societies. Dr. Farrell also outlined briefly how the Rhode Island Medical Society obtains their funds for their public relations program and some of the projects which they are undertaking. Following his discussion the meeting adjourned for lunch.

I might add that after each speaker had finished his topic, a fifteen minute question and answer period was conducted by the Chairman. During these intervals, many remarks of value were brought out by members from the floor bringing out these specific problems that are being met along public relation lines by the various county societies. After lunch, which was

held at the A.M.A. headquarters, the meeting was turned over to Dr. Cardle. Dr. Cardle is Chairman of the Health Education Committee of the Minnesota State Medical Association.

The general topic for the afternoon was "State Society Public Relations Projects." The first speaker was Dr. J. H. A. Peck, President of the Kansas Medical Society. Dr. Peck discussed the problem of getting doctors into rural areas and pointed out the details of the Kansas plan which has been quite effective during the past few years in getting doctors interested in practicing in rural areas. Dr. Peck pointed out that no better public relations can exist in rural areas than to get well trained young doctors into these areas to give medical service to the people. Dr. Peck went into quite some detail about the Kansas plan, how much money the state society was able to get from the legislature to enlarge the Kansas Medical School, the accent that is placed there on getting the younger doctors interested in rural practice. He talked some about the apprenticeship practice that is carried out in Kansas by some of the older doctors emphasizing its value to a young man who plans to go into rural practice. It was clear after hearing Dr. Peck's discussion that to meet the medical needs of the rural areas, particularly where they lack medical care, is an important step toward improving the public relations and in circumventing a national plan.

Dr. George H. Garrison, who is President of the Oklahoma State Medical Association, discussed the public relations value of a Grievance Committee. Dr. Garrison pointed out that in Oklahoma during this year the State Medical Association has formed a Grievance Committee. This so-called Grievance Committee is composed of the immediate five past presidents of the Oklahoma Medical Association. These five past presidents met as a Grievance Committee. Through the press it was advertised to all of the people in Oklahoma that anybody who had a grievance, or anybody who had been overcharged, or had what they considered a legitimate "kick" at the practice of some physician, could come to the Grievance Committee, put out their complaints in writing and the Grievance Committee would go into this with the doctor in question. Actually what has happened is that they have received a great deal of praise in Oklahoma for this Grievance Committee proposition and it has developed a lot of excellent public relations for the Oklahoma State Medical Association. However, actually, they have had very little in the form of grievances to take care of. As a matter of fact. Dr. Garrison states that they have only had up to the present time about 12 complaints. Of these about four or five of them were obviously from irresponsible people, while the rest of them have been satisfactorily settled. Several other states have Grievance Committees under different names and everybody who has had anything to do with it states that this is an excellent public relations medium. It probably should be considered as a project for the Arizona State Medical Association.

Dr. McKinnie Phelps, who is Chairman of the Public Policy Committee of the Colorado State Medical Society, gave one of the very best talks of the conference. Dr. Phelps has been Chairman of the committee which has attempted to promote press relations in Colorado. The title of his talk was "Press and Radio Relations for County Societies and Individual Doctors." Colorado has done an excellent job in promoting their press relationships. It wasn't easy at first, particularly in Denver where they have two extremely active rival newspapers, but through a long series of meetings, cocktail and dinner meetngs with various members of the press and the radio, Colorado has succeeded in establishing an excellent press-radio state society relationship. This not only holds for Denver but throughout the entire state.

It would be well for the state of Arizona to consider carefully the value that has been achieved through the public relations program carried on in Colorado.

Dr. C. Allen Payne, who is Chairman of the Advisory Committee of the Woman's Auxiliary to the Michigan State Medical Society, gave a discussion on the full utilization of the woman's auxiliary as a public relations force, and he made a plea for a wider use and a closer cooperation with the auxiliary in promoting public relations projects. Apparently in Michigan they have achieved a very close and a very satisfactory working arrangement with the woman's auxiliary, and the woman's auxiliary is proving to be a potent factor in promoting public relations. This discussion closed the afternoon meeting.

The evening meeting was held in the Walnut Room of the Bismarck Hotel and was under the

direction of Dr. Louis Bauer, who is Chairman of the Board of Trustees of the American Medical Association. After dinner Dr. Ernest E. Irons, President of the American Medical Association, gave a general discussion on "The Profession and Public Relations" with a strong plea for greater unity and for increased effort, stating that although at the present time we are not in as serious a danger from national socialization of medicine as we have been in the immediate past, that now is the time to work even harder to keep this program from becoming a reality. Mr. Leonard E. Read, President of the Foundation for Economic Education, gave an excellent discussion on the importance of every American realizing that we must work for and preserve our liberty, and that by doing this we are conducting a good public relations project.

The morning session held on Sunday, November 6, was under the direction of Dr. F. S. Winslow, Chairman of the Public Relations Committee of the New York Medical Society. The entire morning was devoted to an open discussion on the various public relations projects, carried on throughout the various state medical associations.

The strongest impression which I carried away from the Public Relations Conference was this—although we have made some progress throughout this country, more in some states than in others, in promoting our public relations programs—that now is no time to let this part of our activities subside. Although at the present time the problem of national socialization of medicine seems to be somewhat quiescent, it is important now for us to develop a permanent and a progressive public relations program because it is only through this means that we are going to be able to prevent in the future some national health act being put over in Congress. On the whole, the meeting was very good. It lacked a little perhaps in the spontaneous enthusiasm of the first public relations meeting. It was probably more of a sober working type of a meeting. There was some little re-hash of things that were said last year, but on the whole the interest of the state medical associations in sending such a wide representation was an indication that we do have a better realization now of the value of proper public relations.

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National Conference

THE SECOND NATIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS

Highland Park, Illinois, October 13-15, 1949

A—*The Family Physician and School Health Services.*

It is important that the records of the examination by the family physician or by the physician serving the schools should be made available to the school health service personnel. Local physicians and family physicians should be supplied with school examination record forms and one copy of this form should be returned by the family physician for each school medical exam done by him.

Family physicians, on the other hand, should request records of any examinations done in school by the school physician. These requests should be forwarded to the family physician directly and not through parents or children

Medical examination records should be filed with the child's cumulative health record and must be kept so as to be immediately available to the family physician, school physician and health department.

Family physician and school physician should, by teacher-physician conferences, explain to the teacher any significant medical findings for her use in counseling. Teachers must safeguard confidential information.

In performing school physical examinations in his office, the physician should have available the reports of health appraisal from the observations and screening tests by school personnel.

Marked orthopedic defects and certain growth abnormalities which are obviously apparent to the teacher, nurse or physical educator, should be promptly referred to the family physician for further investigation.

Only in those instances, where there is no family physician, or where the deviation from normal is so slight as to make questionable the necessity of referring the matter to the family physician, should special medical examination by the school physician be done.

Because, in many instances a family physician cannot be made available for daily service, it becomes essential that teachers and nurses assume the responsibility for making certain health inspections for the purpose of finding those children in need of medical services and proper referral be made to the family physician.

It was strongly recommended that the family physician use the examination record form in use in the schools in the area. He should make such suggestions regarding exercise and modification of the school schedule as indicated from his examination. If, in a transfer of his record to the school record, a breach in the confidential relationship between doctor and patient might occur, he should, instead, give such information in confidence to the physician serving the school.

Schools are not established as health centers or diagnostic clinics but as educational institutions playing an integral part in health education.

When an accident occurs, or when a pupil becomes ill the family physician should be called immediately. In cases where this is impossible or physicians are not available, the school medical advisor or any other immediately available physician should be called, but the services of such a physician should be limited to the immediate emergency care that is needed.

The usual practice of competent first aid in managing emergencies of sickness or accident should not be exceeded by teachers and nurses. They should not diagnose nor should they administer any medication of any sort except as prescribed by a physician. The family physician's name, address and telephone number should be made a part of the pupil's permanent school health record.

The family physician can best participate in the control of communicable disease by basing his policies on the most recent and authoritative public health practices. The physician's responsibility is to encourage parents to make full use of all available preventive measures.

Physicians must realize that control of communicable disease is the special and legal responsibility of the public health officer and his staff, and he should solicit and follow their recommendations.

Where adequate public health services are not available the local medical society should be called on for guidance.

Many schools have their own physician or medical advisor with whom to consult on medical or school health matters, but special or required periodic medical examinations should be done by the family physician.

B—*The School Health Program and School Physician.*

Strong emphasis was made to the end that school physicians do not make medical examinations their only function. Wherever possible all physical exams should be done by the private practitioner of medicine and recorded on the pupil's health card. However, this policy must have flexibility to allow school physicians to make examinations.

The school physician should:

1. Advise with family physicians, parents, and school authorities with regard to health supervisory activities.
2. Advise school administrators regarding conditions especially conducive to the maintenance of healthful school environment.
3. Work with his local health department, medical and dental societies, and community groups to assure necessary health services for all children. All school health authorities should confer with the medical and dental professions in planning the follow-up and treatment program.
4. Coordinate all school health programs with community health programs especially in the fields of communicable disease control, health education and medical and dental services.

The medical and dental professions should be contacted through a community health council with representatives of the medical and dental professions, public health personnel and school health people. The medical coordinator should be an individual with a primary interest in school health and with special training and experience in his field.

C—*Role of Schools, Health Departments and Medical Societies.*

The desirable role of each of the three agencies would be the formation of Health Councils. Only in such a way can all health activities be coordinated to fit problems arising in different communities. This conference strongly recommended that this be done on State and Local levels. The belief was apparent that the best qualified person should explain and interpret any developing program to the three agencies. The state health department, with cooperating medical societies, can be very helpful to each other in presenting this program to practicing physicians in any community. It was shown that the continued availability of advice from state health departments is an important element in the success of local cooperative programs.

The problem of adequate compensation for school medical services was discussed only briefly and nothing tangible resulted.

This conference went on record as recommending the following:

1. All state and local medical societies should sincerely sponsor community health conferences and all school health problems be fully considered in order to stimulate forward planning.
2. Rural school health problems be especially considered.
3. The health council should send as a nucleus in promulgation of school health services. Medical societies must be sold on this idea and should, at least, follow through on a presumptive diagnosis, either right or wrong.

Other factors of no particular interest to the medical profession or the health office were also brought up for discussion. No mention of them is made in this report, but I certainly will be only too happy to bring them to the attention of the Arizona Medical Society, upon my return to the state next June.

Signed:
L. R. Mezera, M. D.,
Director, Maternal, Child Health
Arizona State Department of Health.

(Dr. Mezera represented the Arizona Medical Association at the Second National Conference on Physicians and Schools, held at Highland Park, Illinois on October 13-15, 1949.)

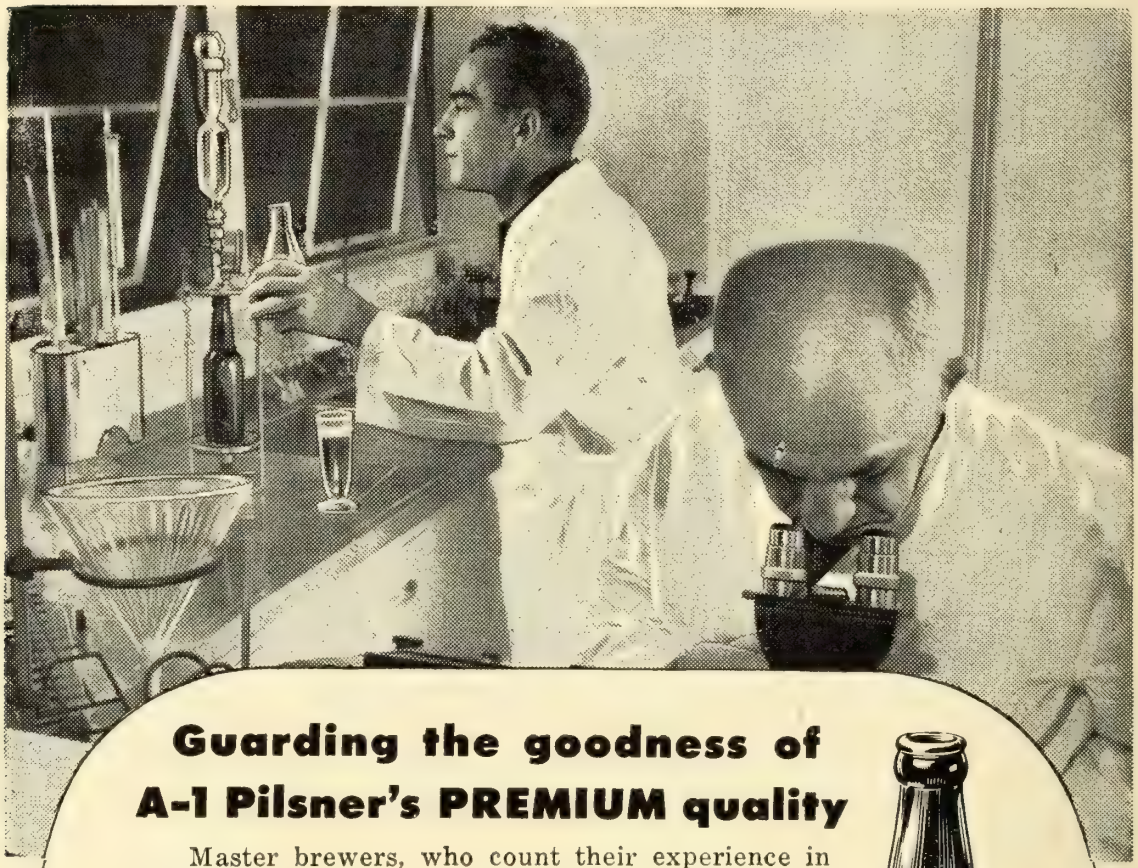
NOTICE

The next meeting of the ARIZONA SOCIETY of PSYCHIATRY and NEUROLOGY will be held in Tucson, Arizona, Saturday, March 18th, at the Tucson Medical Center at 3 P. M. Dr. Tracy J. Putnam, eminent Neurologist, will speak on "The Treatment of Epilepsy."

Philip S. Greenbaum, M. D.,
Secretary.

The appointment of Charles E. Lewis as Vice-President of L. W. Frohlich and Company, Inc., pharmaceutical advertising agency, has been announced as of February 1, 1950. Mr. Lewis has been associated with the agency since 1946 in the capacity of Account Executive.

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PERSONAL NOTES

DR. EDITH LORD, new state supervisor for mental hygiene in Arizona, addressed the Sunday Evening Forum in Tucson on the topic of "Mental Hygiene in Everyday Living." Speakers at the Forum are usually noted public figures from other parts of the world.

The first move to obtain help for children with cerebral palsy was recently made when the "Cerebral Palsy Foundation of Southern Arizona" was formed and incorporated by 100 residents of Tucson. Among the associates are **DRS. Lindsay BEATON, HOLLIS BRAINARD, GEORGE DIXON, DAVID MARCUS, C. M. WITZBERGER,** and **PROF. M. M. R. SCHNECK.**

DRS. BAKER and **SHAPIRO** of Tucson attended the annual meeting of the American Academy of Dermatologists and Syphilologists in Chicago on December 3rd to 9th.

The census of former Arizona students who are now studying medicine has risen. Eighteen who graduated from the University last year are attending medical school, and six have already been accepted by January of this year for admission to Columbia, Yale, Harvard, N. Y. U., and Northwestern.

The Tucson Veterans Administration Hospital has just announced completion of kitchen and dining facilities costing $300,000.

The program of lectures at the Hospital includes a report on "ACTH and Cortisone" by **DR. W. PAUL HOLBROOK** of Tucson, and "Intractable Pain in Neoplastic Disease; the Neurosurgical Measures for Relief" by **DR. H. G. CROCKETT** of the Veterans Administration of Los Angeles.

A controversy between the Federal Security Administration and the Arizona state welfare commission has resulted in a compromise. The federal board withdrew allocated funds (the balance of $50,000 for the fiscal year). As a result the operation of such projects as the rheumatic fever program at the Tucson Medical Center were to be closed.

The sudden closures were due to a reversal of an earlier ruling by Dr. Edwin Daly, assistant to the chief of the children's bureau, FSA. The first decision was to withdraw all funds unless Arizona used 15% of its crippled children's budget to care for Indian reservation children; then it was agreed to support any child now hospitalized; and next it was learned that the first decision would be maintained.

This is the second federal withdrawal within a year. The U.S.P.H.S. recalled a tuberculosis control director, who was here on loan, shortly after the state failed to allocate funds for care of tuberculosis.

DR. ROBERT S. FLINN, President of the Arizona Medical Association, addressed the Pima County Medical Society on "An Account of My Observations in England."

An explanation of the methods which are being used by the Alameda County Medical Association (California) to protect the public were explained by **MR. ROLLAN WATERSON,** Executive Director of the Association. The efforts to inform the public of their excellent plan, copies of which have been sent to many members of the Arizona association, have seemed to be about as good as possible.

The new officers of the PCMS are **DRS. HUGH THOMPSON,** president; **BRICK P. STORTS,** vice-president; **WILLIAM B. STEEN,** secretary-treasurer, and **HAROLD W. KOHL,** Censor. Elected to the County Hospital Medical Advisory Board were **DR. DAVID E. ENGLE** and **DR. MAX COSTIN.** The three-year delegates are **DRS. O. J. FARNESS, R. W. RUDOLPH,** and **DONALD B. LEWIS;** two-year delegate, **J. B. LITTLEFIELD;** and for one year, **C. J. NEWCOMB.**

The Square and Compass Crippled Children's Clinic at 2900 East Broadway, Tucson, was dedicated at its completion in December. The project was constructed with local funds, and with donated labor, equipment, and materials. Thirteen local organizations have become continuous participating or contributing sources, and ten other groups have aided. Representatives of contracting and labor groups, radio stations, and newspapers were among the honored guests.

Arizona has received a portion of its funds for research from the American Cancer Society. Dr. Herbert L. Stahnke, director of the poisonous animals research laboratory at Arizona State College, Tempe, will use the $1,000.00 grant to determine the effect of various venoms on malignant growths.

DR. BRUCE HART, superintendent of the Arizona State Hospital for the Insane, has announced the appointment of **DR. H. H. BROWN** as clinical director. Dr. Brown has been a member of the staff of the North Carolina State Hospital, and has recently completed post-graduate work in psychiatry at Duke University.

An Arizona resident, Mr. Dixon Fagerberg of Prescott, has given the income from fifty thousand dollars worth of Missouri property to the Kansas University Endowment Association for medical research.

Funds of this sort could be used to finance the work of a Clinical Research Group in Tucson or Phoenix, as has been recommended in the columns of ARIZONA MEDICINE. Physicians form the logical contacts to obtain such funds.

At the annual meeting of the Maricopa County Medical Society in Phoenix December 5, 1949 **DR. E. W. MELICK** was elected President-elect; **DR. FRANK EDEL** was elected Vice-president, and **DR. DAVID JAMES** was elected Secretary-Treasurer. The 1949 President-elect, **DR. HENRY WILLIAMS,** has assumed the Presidency.

At this meeting of the Maricopa County Medical Society an interesting subject, "Air Pollution," was discussed by **MR. LEWIS R. JERWITZ** of the U. S. Weather Bureau in Phoenix, and **DR. GEO. McKHANN.** The interesting program was made more so by a talk by the U. S. Public Health Service officer, Chief of the Field Service, Sanitary Engineer, **MR. HENRY DOYLE, Sr.,** from Salt Lake City, Utah.

ROLLEN W. WATERSON, Executive Secretary Officer of the Alameda County Medical Society, discussed the Alameda County Medical Association Medical Plan and answered questions at the January meeting of the Maricopa County Medical Society. The matter of adapting such a plan for Maricopa County or for Arizona was left in the hands of a committee for study.

St. Joseph's Hospital Staff elections were held in Phoenix, and the following officers were elected: President, **DR. J. MADISON GREER;** Vice-President, **DR. ROBERT BARFOOT,** and Secretary, **DR. ROBERT CUMMINGS.**

At the annual meeting of the Good Samaritan Hospital Staff in Phoenix, **DR. GEO. ENFIELD** was elected President; **DR. REED SHUPE,** Vice-president, and **DR. DONALD G. CARLSON,** Secretary.

The officers of the St. Monica's Hospital Staff were unanimously re-elected, without change from the 1949 officers—**DR. ROBERT FLINN,** President, **DR. PAUL SINGER,** Secretary.

Lawrence Reynolds, roentgenologist of the Harpers Hospital in Detroit, spoke to the staff of St. Joseph's Hospital, Phoenix, in a most interesting fashion on the Radio-active Isotopes. He strongly recommended in the future construction of local hospitals that radio-active isotope laboratories be included in their construction. He very accurately outlined the value of the radio-active isotopes in the diagnosis and treatment in medicine today.

A new club has been organized in Phoenix patterned somewhat after the Phoenix Clinical Club. It is called the "Osler Club." The President of this group is **DR. HAYES CALDWELL;** Secretary, **DR. AUDRY URRY.**

DR. FRANK MILLOY, Jr., Phoenix, began a four-years residency in surgery at the Cook County Hospital in Chicago on January 1st.

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Arizona Blue Shield Blue Cross

Acceptance of two new member hospital applications by the Board of Directors of Arizona Blue Cross brings the state's total of Blue Cross member hospitals to twenty-two.

Newest members are the Benson Hospital and the Douglas Hospital of the Phelps Dodge Corporation. Both memberships became effective on January 1.

The Douglas Hospital was established by the Phelps Dodge Corporation to serve its employees and the community at large. Dr. Nicolo V. Alessi has been in charge since 1932.

The 10-bed Benson Hospital was established at the beginning of 1949 by Dr. J. M. Hesser, the only doctor of medicine in the eastern Arizona community. Mrs. Mary Lou Hesser is administrator.

"We are proud to welcome the Douglas and Benson Hospitals into the family of Blue Cross member hospitals," said L. Donald Lau, Executive Director of the Arizona Blue Cross and Blue Shield Plans. "Their Blue Cross memberships assure our members in the Douglas and Benson areas the full benefits of membership without the necessity of traveling from their home communities for hospital care. Local Blue Cross membership will be vastly encouraged."

In addition to the Benson and Douglas Hospitals, the Arizona Blue Cross member hospitals now are: Good Samaritan, St. Joseph's and St. Monica's in Phoenix; St. Mary's and the Medical Center in Tucson; Copper Queen Hospital, Bisbee; Marcus Lawrence Hospital, Cottonwood; Pinal General Hospital, Florence; Mohave General Hospital, Kingman; Flagstaff Hospital, Flagstaff; Southside Hospital, Mesa; Inspiration Hospital, Miami; St. Joseph's Hospital, Nogales; Holbrook Hospital, Holbrook; Community Hospital, Prescott; Tempe Hospital, Tempe; Community Hospital, Wickenburg; United Verde Hospital, Jerome; Winslow Hospital, Winslow, and Yuma General Hospital. Yuma.

Arizona Blue Cross added 9,802 to its membership in 1949, bringing the total to 109,832 at the end of the year. This is about one in six of the state's population, with population figures based on recent unofficial estimates of something in the neighborhood of 700,000.

The $2,000,000 mark in payments to hospitals was passed by Arizona Blue Cross on November 15, just thirteen months after the first million was reached in October, 1948. The payment which boosted the figure over $2,000,000 was made to the Community Hospital in Wickenburg.

Arizona Blue Shield continued its steady climb in enrollment during 1949, with a gain of 18,361 over the 32,476 membership at the end of 1948—for a total net membership of 51,837. There were 17,548 Blue Shield contracts effective last December 31, for an average of 2.95 participants per contract.

Latest national figures from the Blue Cross Commission show that more than 35,000,000 persons were enrolled in ninety plans in the United States and Canada at the end of last September—or about 22 per cent of the population.



FEDERAL AID TO MEDICAL EDUCATION

A Joint Statement by the Board of Trustees and the Council on Medical Education and Hospitals of the American Medical Association on Senate Bill S. 1453 and H. R. 5940

The following statement was prepared jointly by the Board of Trustees and the Council on Medical Education and Hospitals of the American Medical Association. The statement was adopted by the House of Delegates of the American Medical Association at the Clinical Session in Washington, D. C., December 8, 1949.

The Twelfth Point of the American Medical Association's program for the advancement of medicine and public health supports financial aid to medical education "with funds free from political control and regulation of the medical and allied professional schools." This point was elaborated by the Board of Trustees after consultation with the American Medical Association's Council on Medical Education and Hospitals as follows:

"Some medical schools are finding it difficult to secure sufficient funds to maintain their standards of training. The American Medical Association would prefer to see medical schools receive the support they require from private philanthropy or local public funds. Unless and until such support is provided, it may be necessary for some medical schools to accept financial aid from the federal government. Such aid, however, must carry with it the assurance of freedom from political control and regulation.

"To preserve the freedom and independence of the medical schools, it is important that the responsibility for determining which schools may qualify for federal aid should reside in the states. This can be satisfactorily accomplished if the legislation provides that any medical school shall be eligible for financial aid if three-fourths of the states through their medical licensing boards judge the schools to be conducting an educational program of sufficiently high quality to warrant the admission of its graduates to their state examinations for medical licensure.

"To encourage continued local support of medical education from public and private funds, the formula for allocating federal aid should provide only a limited portion of a school's total budget.

"Since medical schools are already increasing enrolments as rapidly as they can expand their facilities, the provision of a relatively large financial premium which might induce certain schools to enroll more students than they could properly accommodate should be avoided.

"The formulas for the allocation of all funds should be simple in principle and written into the law. The responsibility and authority of the officials administering the program should be limited to an audit to determine that the funds are employed for the general purposes for which they were granted.

"Any federal scholarship program should leave the medical schools entirely free in the selection of their students and should avoid the regimentation of the future careers of the recipients."

Following the favorable report by the Senate Committee on Labor and Public Welfare of an amended version of S. 1453, the Council on Medical Education and Hospitals submitted the following statement to the Board of Trustees:

"On August 3, 1949, Senator Pepper, on behalf of the Committee on Labor and Public Welfare, reported favorably to the Senate an amended version of S. 1453, the bill which he had introduced in March, 1949 to provide federal aid for medical education. The amended bill was prepared following public hearings by the Sub-committee on Health on all bills concerned with federal aid to medical education and following a two-day conference with the professional staff of the Subcommittee in which representatives of the American Medical Association and the medical schools participated. The bill in its present version carries the unanimous endorsement of the full Senate Committee on Labor and Public Welfare.

"The bill in its present form represents in general a distinct improvement over all earlier measures. The following changes have been made which represent concessions of varying degrees to the requests made by the American Medical Association representatives at the hearings and the conferences referred to above:

"1. The payments to the medical schools have been changed from $300 for each student enrolled up to a school's average past enrolment and $1,700 for each student enrolled in excess of a school's average past enrolment to $500 and $1,000 respectively, and a limitation of 30 per cent of the average past enrolment has been set for the number of students for which the higher rate of $1,000 will be paid.

"2. The total payment that the Federal government may make to any school has been reduced from 50 per cent of the school's budget to 40 per cent.

"3. The provision for federal scholarships for medical students has been rewritten so that no scholarships will be provided so long as the medical schools are able to fill their enrolments with students who do not need federal scholarship aid.

"4. The constitution and powers of the National Council on Education for Health Professions have been improved so as to provide a more effective check on the Surgeon General's powers in administering the act.

"5. The provisions of the act are effective only for a five-year period, at the end of which time the Congress will have to determine whether to continue such aid and, if so, in what form.

"Despite these improvements the bill contains several provisions which are objectionable to varying degrees:

"The $1,000 payable for each additional medical student will be paid to new medical schools for all students. This provision unduly and unfairly favors new schools over established schools in the matter of federal aid. Our representatives had recommended that the same limitation on the number of students for whom the higher payment of $1,000 would be made, namely 30 per cent of the enrolment be applied to new schools as well as to old schools.

"The bill provides $5,000,000 annually for grants for construction to assist in the establishment of new schools in the health professions and in the improvement and expansion of existing facilities, these grants to be made by the Surgeon General in the order of the estimated importance of the requests received. Our representatives felt that no grants for construction should be made until the needs of all the medical schools had been surveyed and a balanced, long range program developed. They also felt that vesting in the Surgeon General full authority to award such grants opened the door for political pressure and interference. This last objection has been partially met by providing that the Surgeon General should obtain the advice and recommendations of the National Council on Education for Health Professions before awarding such grants, but there is nothing in the bill that would prevent him from disregarding the advice and recommendations of the Council.

"Mention should be made of the fact that the bill gives the National Council on Education for Health Professions rather sweeping authority to investigate the medical schools and to determine their capacity to maintain and expand student enrolments, to establish a uniform method of calculating costs of instruction and to determine the extent to which equal opportunity to gain an education in the health professions is afforded all properly qualified students.

"We recognize that the National Council must be in a position to obtain information necessary for carrying out the purposes of the Act. How the National Council can be given proper authority without being put in a position where it can interfere with the administrative policies of the medical schools presents a dilemma, the solution to which is not readily apparent."

Since S. 1453 has now passed the Senate, and since it appears doubtful that further changes will be made by the House in the companion bill, H. R. 5940, the Board of Trustees feels it must oppose this bill.

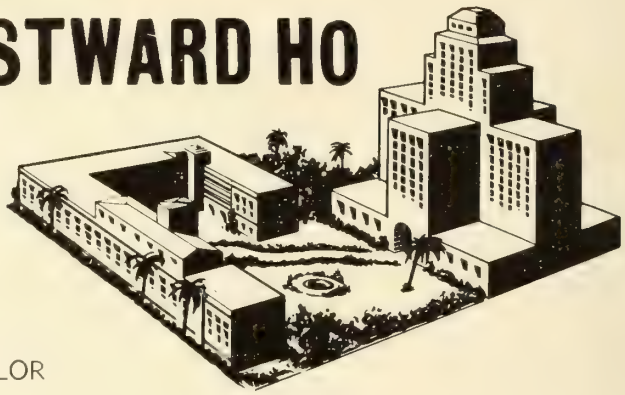
The criticisms offered by the Council on Medical Education and Hospitals clearly indicate that this bill is not satisfactory, and it is potentially dangerous to the continued academic freedom of the medical schools. Even though the bill provides for federal aid for only five years, if enacted, it will be difficult after such a period to change the relationship of the federal government to the medical schools except to permit further government control.

The comment of the Council on the opportunity for the exercise of political pressure and interference with respect to grants for construction is particularly well taken. If political pressure and interference are possible in one phase of a school's activities, they can without great difficulty be brought to bear on other phases.

Too much potential authority to interfere with the internal administration of the medical schools is granted to the National Council on Education for Health Professions. As stated in the 12-Point Program of the American Medical Association, to protect the freedom of individual schools, "The responsibility and authority of the officials administering the program should be limited to an audit to determine that the funds are employed for the general purposes for which they were granted." Any program of grants in aid to medical education has far reaching implications with respect to the freedom of the medical schools. No program should be embarked upon until protection of this freedom is absolutely guaranteed. The Board of Trustees feels, therefore, that since this bill does not guarantee such freedom, and since the bill contains, other undesirable features, as pointed out by the Council, it must urge opposition to the enactment of this bill.

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MRS. JESSE D. HAMER

Mrs. Jesse D. Hamer is a charter member of the Woman's Auxiliary to the Arizona Medical Association and has served as state president and as president of the Woman's Auxiliary to the Maricopa County Medical Society. In addition to holding several other offices she has been chairman of various committees in both the state and county auxiliaries. In the Woman's Auxiliary to the American Medical Association, she has served as Chairman of Legislation, as a Director, as Regional Chairman of the War Service Committee, and has been a member of the Finance and other committees. She was elected to the office of President-Elect at the annual meeting held in Chicago in June, 1944 and was installed as National President at the annual meeting in San Francisco, California in July, 1946.

Since completing the term as president of the National Auxiliary in June, 1947, Mrs. Hamer has served as a Director on the National Board. She has also held the position as Historian and been a member of the Finance Committee. As one of the three immediate past presidents, she is, in addition to the above, serving as a member of the committee which supervises the Traveling Fund of the Auxiliary.

Mrs. Hamer has been actively interested in many community activities and has held various offices in the county and state Nurses' Associations, the Y. W. C. A., the Community Chest, American Red Cross and Social Service Center of Phoenix. She is at present a member of the Board of Directors of the Visiting Nurse Service of Phoenix.

PIMA COUNTY

Florence Monahan Speaks to Medical Auxiliary

Miss Monahan, former superintendent of the Minnesota Reformatory for Women, Illinois Training School for Girls, Washington Training School and the California Reformatory for Women at Tahitchapee, gave a very interesting talk on "Women in Crime" at the monthly Auxiliary meeting held Tuesday evening at the Santa Rita Hotel.

Miss Monahan is now on the staff of the Catholic Social Service in Tucson. She is a national expert on penology and is the author of a book entitled "Women in Crime." She stated that women comprise less than 2% of all criminals in the country, and that the basis for the majority of their crimes is some emotional attachment. Eighty to ninety per cent of all crimes, she stated, were some form of stealing.

Prisons for women differ architecturally from most prisons for men. Women inmates live in cottages with no bars, and the tension and fear so prevalent in prisons for men is completely lacking. The staff mixes with the prisoners and a friendly feeling prevails.

She stated that the Baker Foundation in Boston made a survey on the cause of delinquency among children and found that children who were unhappy and dissatisfied at home were most apt to become delinquent.

Miss Monahan gave a delightful talk describing her experiences which was thoroughly enjoyed by members of the auxiliary.

Mrs. Max Costin was appointed Blood Donor Recruitman Chairman to recruit volunteers among the Pima County Medical Auxiliary for the American Red Cross.

MARICOPA COUNTY

January News

Those who attended the annual Christmas dance in the Fiesta Room of the Hotel Westward Ho consider it one of the most successful in the history of the Auxiliary. An excellent buffet supper was served from 8:30 to 10:30, with music for dancing by Vern Suter's orchestra. Mrs. Charles Van Epps was in charge of arrangements.

During the holiday season, members of the Auxiliary derived a great deal of pleasure from giving to a needy family. The recipients were a patient crippled with arthritis and his mother; the gifts, an electric blanket and large basket of food.

At the December meeting, Mrs. Benjamin Herzberg, the State President-elect, gave her report of the Chicago Conference of Presidents and Presidents-elect, and Chairmen of Standing Committees of the National Auxiliary to the American Medical Association.

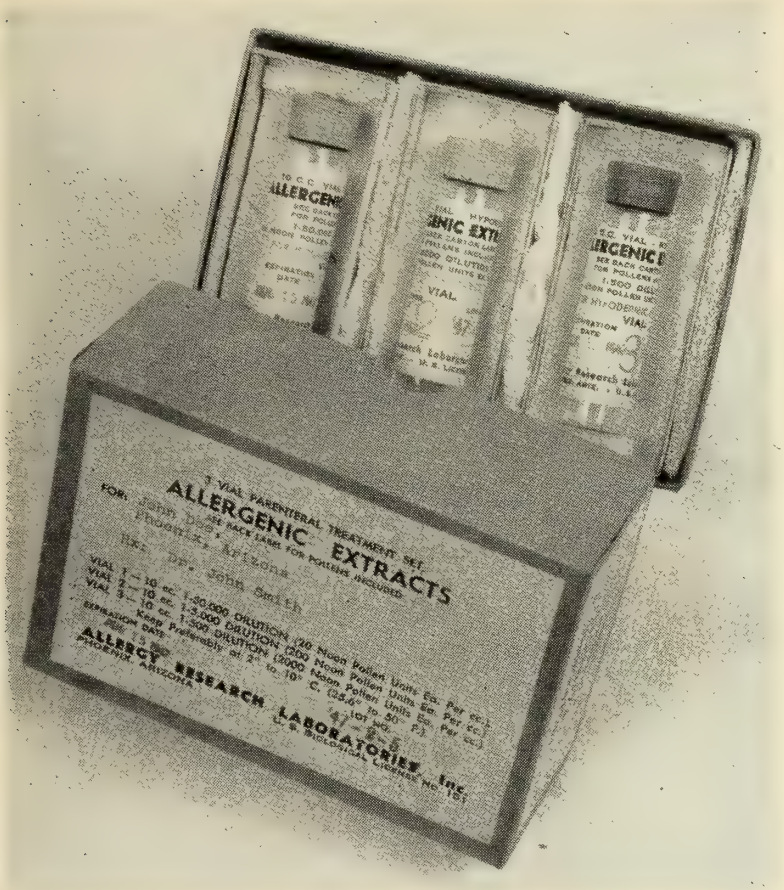
Because of their success with the Community Chest work, the Maricopa County Medical Auxiliary has been asked to take over in a similar way the responsibility of the doctors' contributions to the Red Cross. The Board has agreed to do this. At the same time, the Board voted not to take over any additional charity in the future.

The Auxiliary has an opportunity to make some extra money for its donations to the various health funds. They have a large block of good tickets (200) for Sunday, February 19th, for one performance of the Sombrero Playhouse production, *My Sister Eileen*, starring Una Merkel. Prices are the same as usual, and the Auxiliary will get a forty per cent commission on the tickets sold.

Mrs. John R. Green,
Publicity Chairman,
Maricopa County Auxiliary.

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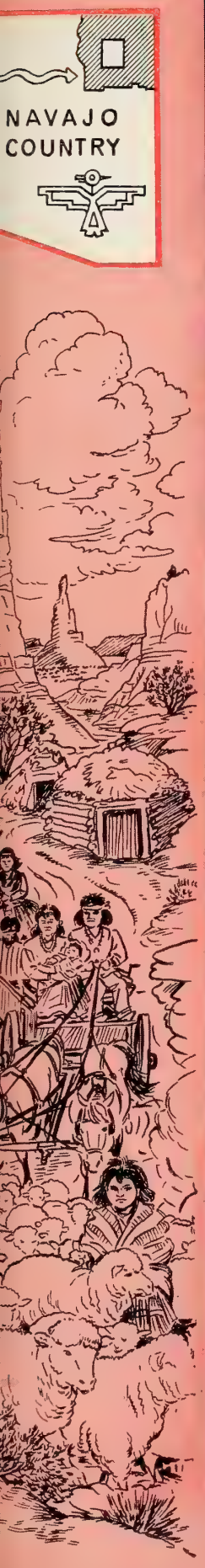
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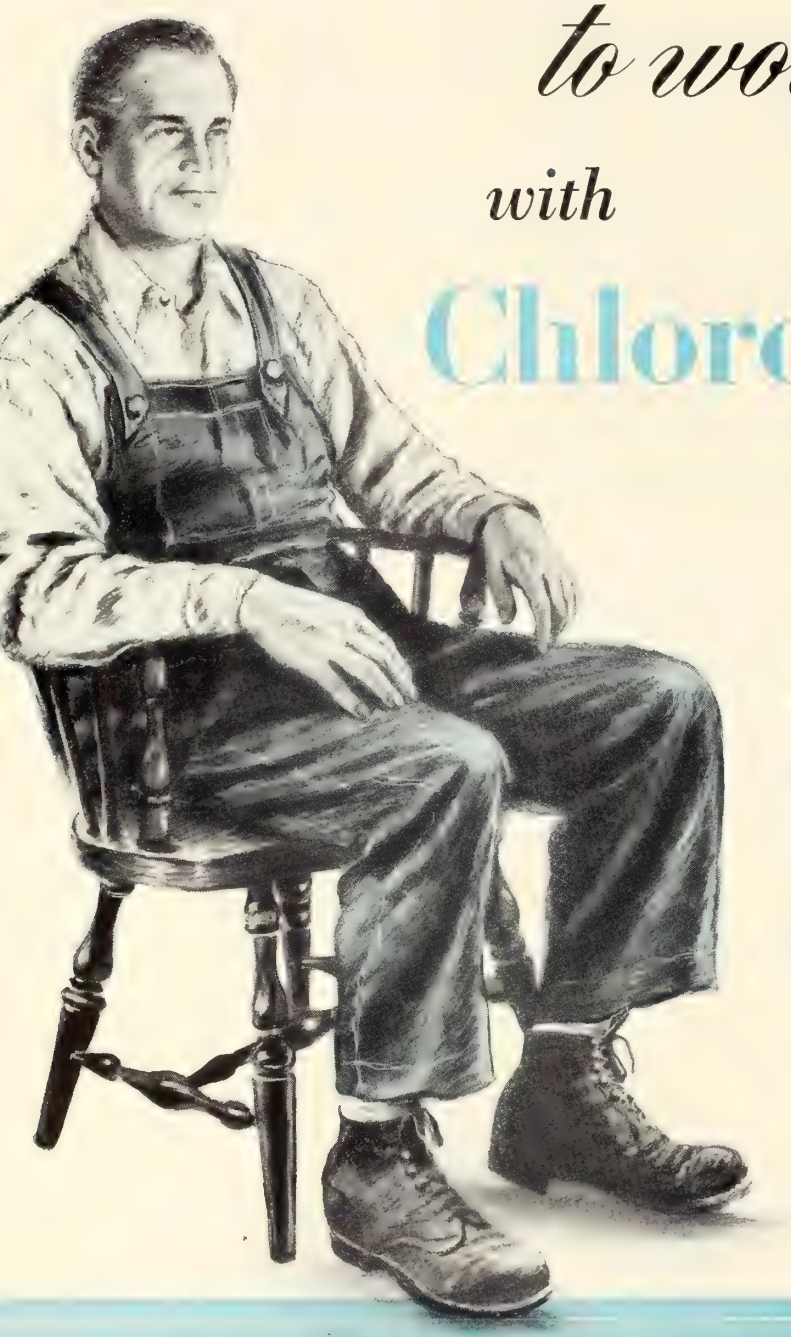
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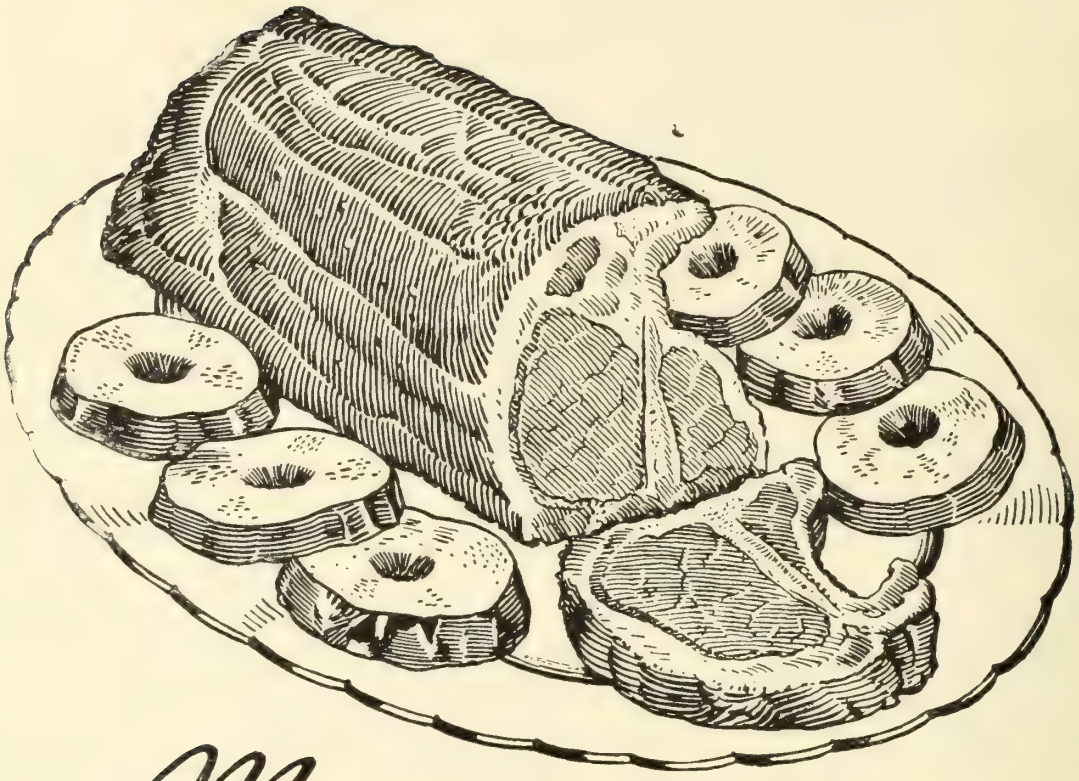
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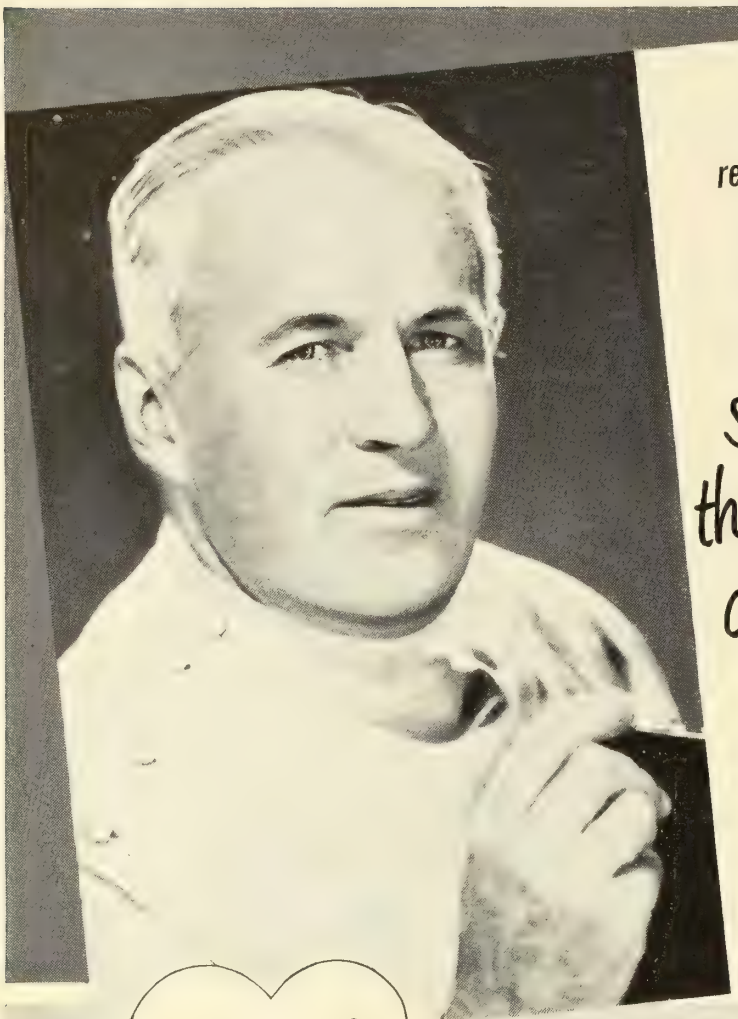
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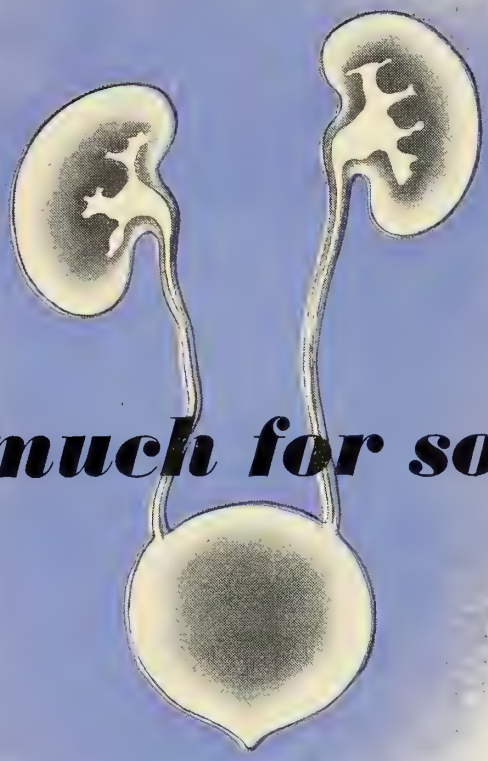
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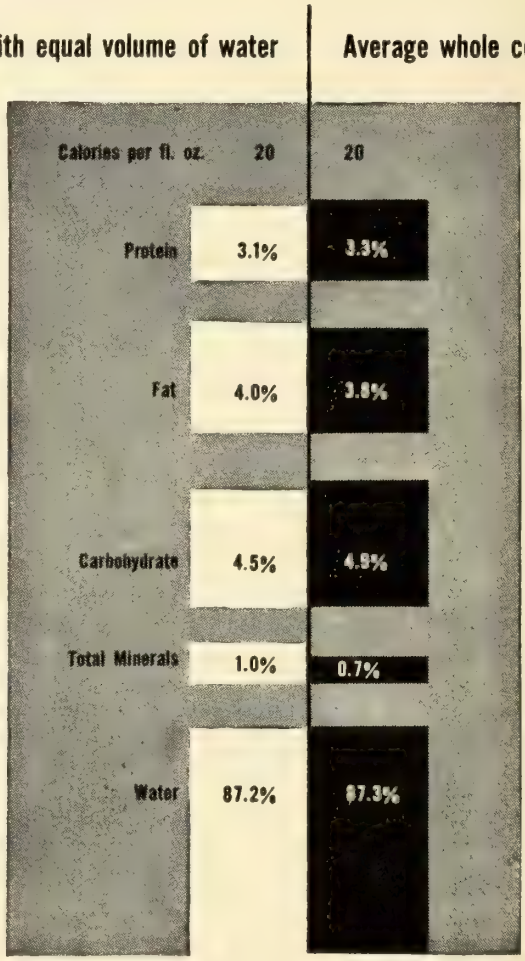
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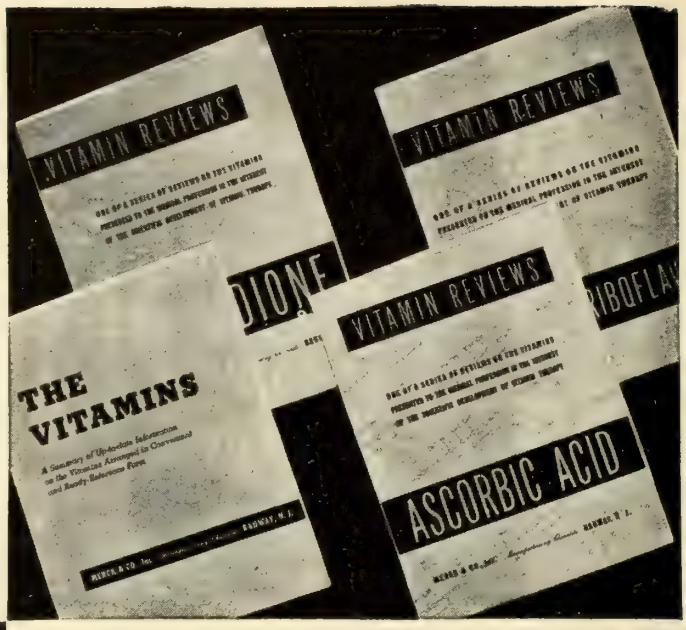
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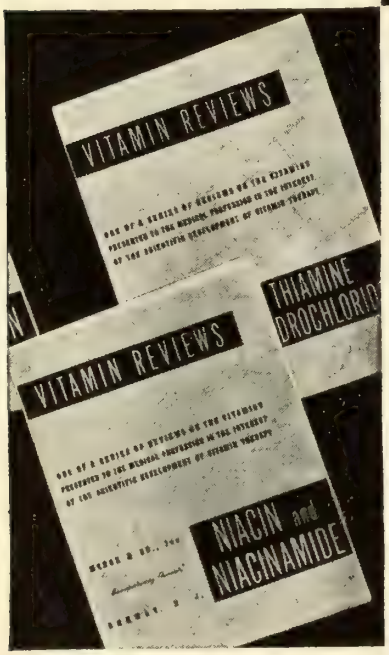
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* Hamblen, E. C.: Some Aspects of Sex Endocrinology in General Practice, North Carolina M. J. 7:533 (Oct.) 1946.

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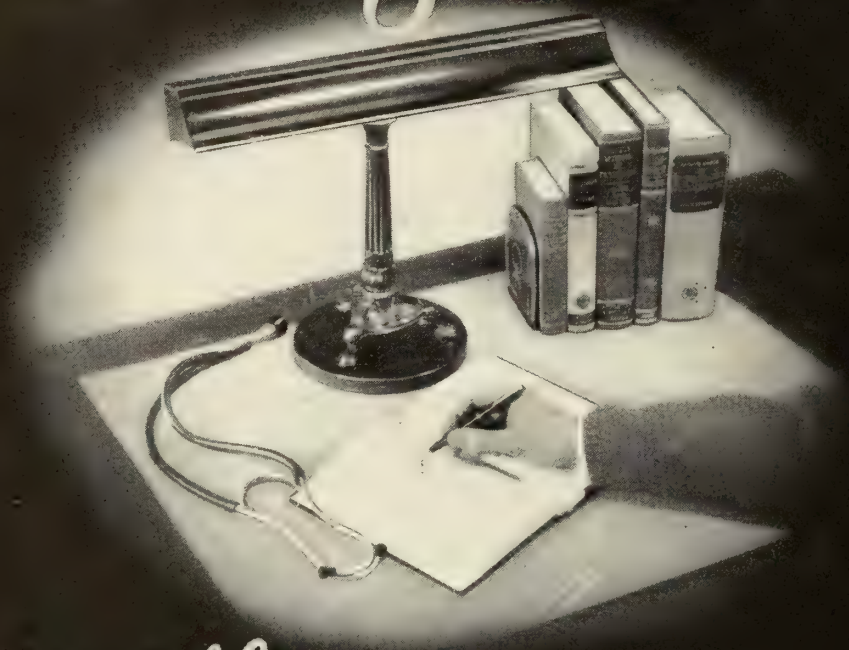
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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

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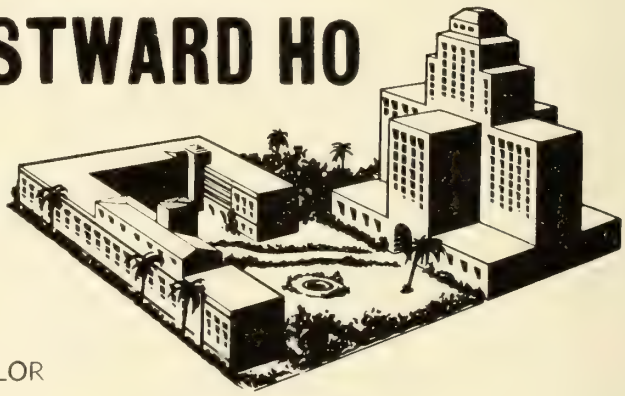


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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 7, NO. 3 MARCH, 1950

THE ARIZONA SCORPION PROBLEM

HERBERT L. STAHNKE, Ph. D.
Director Poisonous Animals Research Laboratory
Arizona State College, Tempe, Arizona

FOR many years, the extent and nature of our scorpion problem seems to have been a debatable question. Perhaps the information here presented will help clarify the issue so that a complete solution can be realized sooner.

An over-all view of the problem can most readily be obtained from the statistics derived from a recent questionnaire sent to the members of the Arizona Medical Association. From this data, as shown in Table I, we see that Arizona physicians have treated 1,553 cases of scorpionism in a ten-month period. In keeping with this total, it would be conservative to state that over 2,500 people are stung each year by scorpions since many cases never come under the doctor's surveillance.

The data, on the effects of the scorpion sting, gives us an excellent picture of the distribution of the lethal and non-lethal species. The only two known to produce a lethal venom are *Centruroides sculpturatus* Ewing and *Centruroides gertschi* Stahnke. In keeping with actual collecting data, the above findings show that these two scorpions have not made their presence known in Coconino, Mohave, and Navajo Counties. *C. sculpturatus* has been taken once in the Petrified Forest National Monument of Apache County. In Yavapai County both lethal species are found rather frequently from Cottonwood through the Oak Creek Canyon region. *C. gertschi* is more abundant here than *C. sculpturatus*. The latter has also been taken from Yarnell south to the Yavapai County line. Other parts of this county seem to be free of these lethal species. The number of cases reported from Cochise, Graham, Greenlee, and Santa Cruz counties is misleading. These counties have a rather heavy population of *C. gertschi* but due to a sparser human population have fewer contacts. They illustrate well why scorpions did not present as great a problem in Arizona while our state population was small and why some people still tend to consider scorpions as not being dangerous.

The cases reported under 3d, e, & f in Table I have all obviously been stung by non-lethal scorpions, as indicated by the following discussion:

From laboratory and clinical findings we may classify all scorpions as possessing either a lethal or non-lethal venom. The venom of the two lethal species gives the following characteristic reactions: Let us suppose the patient has been stung on the tip of one of the digits of the hand. The only visible effect at the site of the sting may be a tiny blood spot should the aculeus have penetrated a tiny vessel. Otherwise there is never a wheal, or swelling, or discoloration from one of the two previously mentioned species.[1] The *absence of any visible sign*, when the information is *positive* that the patient has contacted a scorpion, should suggest a sting by an Arizona *Centruroides*.

At the site of the sting the patient at once experiences a tingling to a burning sensation. It may be quite painful. Tapping the site increases the tingling and pain. Such hypersensitivity may linger for as much as a week to ten days after all other symptoms have disappeared. This sensation will travel up the arm, most generally being more pronounced along a nerve path.

1. In this respect the physician must not confuse the issue from his reading about the Mexican **Centruroides** and lethal scorpions of India and Africa. Even some of our U. S. **Centruroides** give a very different syndrome from the one reported above.

Table I

Results of Questionnaire given by members of Arizona Medical Association

		Apache	Cochise	Coconino	Gila	Graham	Greenlee	Maricopa (Phoenix)	Maricopa (Other towns)	Mojave	Navajo	Pima	Pinal	Santa Cruz	Yavapai	Yuma	Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Number of towns represented:		2	6	4	4	1	1	1	11	1	3	2	4	2	6	2	50
Number of Doctors	Quest. Sent:	3	20	9	14	4	6	215	31	4	8	142	10	8	19	15	508
	Quest. Received:	2	20	9	12	4	3	173	29	4	6	127	10	7	18	12	436
1. Practice includes scorpion cases	Yes	1	15	4	12	4	3	100	27	4	3	72	10	6	13	11	285
	No	1	5	5	0	0	0	70	2	0	3	44	0	1	4	1	136
2. Need for serum	Yes	1	14	7	12	4	3	112	26	4	3	76	9	7	10	10	298
	No	1	5	1	0	0	0	33	1	0	1	25	0	0	5	1	73
3. Number of cases in ten months:		2	73	5	151	17	15	433	395	1	1	190	117	38	14	101	1553
a. Comparison with previous years:	*Yes	0	3	1	5	0	1	29	7	0	0	20	0	4	1	4	75*
	more	0	1	0	0	0	0	3	1	0	0	2	0	0	2	0	9
	Less	0	0	0	0	0	0	12	1	1	0	6	1	0	0	0	21
	Same	2	11	2	7	3	2	46	16	3	1	36	4	2	5	6	146
b. Convulsive state:		1	3	0	21	5	3	33	72	0	0	22	22	3	1	3	189
c. Hospitalized:		1	5	0	31	9	4	49	78	1	0	29	15	1	4	2	229
d. Definite swelling at site of sting:		1	30	4	13	10	10	187	30	2	0	110	58	7	12	79	553
e. Ecchymosis at site of sting:		1	10	2	5	6	6	81	3	1	0	58	9	0	10	22	214
f. Allergic symptoms from venom:		2	4	1	16	6	2	38	6	1	0	29	14	5	3	14	141
4. Number of therapeutic doses requested:		2	31	6	34	13	29	184	69	6	8	117	25	24	17	20	585

* Answers were merely "yes", instead of more, less, or same.

With the *Centruroides* species pain is not experienced in the regions of the lymph nodes. Pharyngeal spasms and "thick tongue" may be next experienced. In the laboratory rat the mouth may be held open with the tongue protruding. The first reaction shown by this animal other than at the site[1] of the sting is a nervous, cleaning reaction around the nose and an alternate patting of the front feet accompanied by a general restlessness. In the child, we see a restlessness of such an extent that the patient will not be still even an instant. In some cases attempts are made to climb the bedstead, wall, or individual carrying the child. Progressively, movements will become more tonic and fibrillations of muscles through the body may be experienced until powerful convulsive reactions are instituted. The nature of the convulsive state seems to be in direct proportion to the amount of venom injected.[2] Where a slightly sublethal dose is administered one may experience alternate opisthotonic and emprosthotonic spasms. In the presence of a definite lethal dose the convulsive state consists of chaotic movements. In the rat, we see a rushing, running-crawling, forward movement, ending in an opisthotonic spasm which hurls the animal into the air and on its back. In the child we find flailing of arms, aimless crawling, grotesque twisting of trunk, abdominal cramps, throwing backward of head and a staring into space. In the rat, the eyes become strongly exophtholmic. During this time the patient may become temporarily blind for six to eight hours and/or experience an inability to focus the eyes and go from a state of disorientation to complete unconsciousness. Simultaneously, there may be excessive drooling of oral secretions. These do not have a pulmonary origin as indicated by histological section and cannulation of the trachea. Frequently, there is involuntary micturation and defecation during this time. Movements become progressively less violent in

1. We have followed the practice of always injecting the venom in either the left or right rear appendage. If the venom is potent, the animal strongly favors the injected hind leg at once.

2. The amount of venom possessed by a scorpion at one time varies considerably. By electrical extraction **C. sculpturatus** was found to vary from no venom up to 0.00021 ml. The average is approximately 0.00010 ml. with about 10% having no venom regardless of the length of captivity.

the later stages. Just before death there may be only a few light spasms or a complete absence of spasms and only occasional fibrillations. Also in this later period one may see a cyanotic condition of the extremities and lips.

Post-mortem examinations of a large number of laboratory animals have consistently shown the following: Hyperdistention of the cardiac portion of the stomach, hyperemic condition of the liver, kidneys, and vessels of the viscera in general: the abdominal walls are anemic and cardiac failure occurs during ventricular systole. Frequently, the lungs will show pin-point to large areas of superficial hemorrhage. In rats, the hyperdistention of the cardiac portion of the stomach is generally so great as to make this structure transparent. In the rabbit, rupture of this portion of the stomach most generally occurs as a result of a lethal dose. This distention is caused primarily by gas and fluids. In the presence of an M.L.D., death has been prevented in laboratory animals by the mere expedient of a stomach tube and the exhausting of the accumulated gas.

The *Centruroides* scorpions are frequently called "bark scorpions" because in nature away from human dwellings they prefer the habitat provided by the loose bark of trees. They thrive well in the coolness and dampness of human dwellings. Many thousands of observations under natural conditions and in the laboratory show that they never burrow in soil or sand.

Table II

DEATHS FROM VENOMOUS ANIMALS IN ARIZONA FROM 1929 THROUGH 1948

Mo.	Animal	Year																			
		29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Jan.	Scorpion										1								1		
Feb.	Black Widow										1										
	Scorpion											1									
Mar.	Scorpion		1											1							
	Spider												1								
Apr.	Scorpion							1							1						
	Rattlesnake								1												
	Bee																		1		
May	Scorpion	2						1			1	1				1	2	1			1
	Gila Monster		1																		
	Rattlesnake													1							
	Spider																				1
June	Scorpion	1	1		2		1	3	1			1	2	1				1			
	Rattlesnake													1							
July	Scorpion	2	1		1	1		2	2		1	3	2		2					1	
	Rattlesnake	1												1					1		
	Insect		1					1								1					
	Black Widow							1													
Aug.	Insect		1																		
	Rattlesnake		1		1				1				1								
	Scorpion			1			1							2		1		1	1		
	Spider																		1		
Sept.	Rattlesnake	1				1															
	Centipede												1								
	Insect														1						
Oct.	Rattlesnake	1										1									
	Scorpion		1		1	1	1		1		1	1						1			
Nov.	Spider			1																	
	Rattlesnake												1								
Dec.	Black Widow								1												
	Totals	8	8	2	5	3	3	9	7		5	8	8	7	4	3	2	4	5	1	2
	Scorpions	5	4	1	4	2	3	7	4		4	7	4	4	3	2	2	4	2	1	1
	Rattlesnake	3	1	0	1	1	0	0	2		0	1	2	3	0	0	0	0	1	0	0
	Black Widow	0	0	0	0	0	0	1	1		1	0	0	0	0	0	0	0	0	0	0
	Others:																				
	Gila Monster	0	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0
	Spider	0	0	1	0	0	0	0	0		0	0	1	0	0	0	0	0	1	0	1
	Insect	0	2	0	0	0	0	1	0		0	0	0	0	1	1	0	0	0	0	0
	Bee	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	0	0
	Centipede	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	0	0	0	0
		8	8	2	5	3	3	9	7		5	8	8	7	4	3	2	4	5	1	2

No statistics available for 1937

1. From "Scorpions", H. L. Stahnke, 1949, Arizona State College Bookstore, Tempe, Arizona.

SUMMATION BY ANIMALS

Mo.	Animal	Scorp.	R.S.	B.W.	Others	Monthly Total
Jan.	Scorpion	2				2
Feb.	Black Widow			1		
	Scorpion	1				2
Mar.	Scorpion	2				
	Spider				1	3
Apr.	Scorpion	2				
	Rattlesnake		1			
	Bee				1	4
May	Scorpion	10				
	Gila Monster				1	
	Rattlesnake		1			
	Spider				1	13
June	Scorpion	14				
	Rattlesnake		1			15
July	Scorpion	18				
	Rattlesnake		3			
	Insect				3	
	Black Widow			1		25
Aug.	Insect				1	
	Rattlesnake		4			
	Scorpion	7				
	Spider				1	13
Sept.	Rattlesnake		2			
	Centipede				1	
	Insect				1	4
Oct.	Rattlesnake		2			10
	Scorpion	8				
Nov.	Spider				1	
	Rattlesnake		1			2
Dec.	Black Widow			1		1
	Totals	64	15	3	12	94
	Scorpions	64				
	Rattlesnake		15			
	Black Widow			3		
	Others:					
	Gila Monster				1	
	Spider				4	
	Insect				5	
	Bee				1	
	Centipede				1	
					12	94

All other known Arizona scorpions are classified as "ground scorpions." They choose to live outside of human dwellings, under objects or in the ground. They most generally burrow in loose soil or sand and only accidentally invade a dwelling. Scorpions found buried in a child's sand-box are always of this type. Since their venom is non-lethal they should not be the cause for preventing a child from having the obvious benefits of a sand-box.

The venom of all ground scorpions produces apparently only a local reaction in the form of a sharp, painful burning sensation accompanied frequently by local swelling and ecchymosis. In severe cases redness may radiate from the site of the sting and painfully effect neighboring lymph nodes. These ground scorpions may be further classified according to the local reaction of their venom as follows:

1. Sharp-burning sensation of very short duration plus a possible mild swelling.
2. Sharp painful burning sensation plus a swelling, mild or pronounced.
3. Conditions of number 2 with a possible ecchymosis, mild or severe.
4. Conditions of number 2 with allergic reactions in the form of severe swelling distant from the site of the sting.

These reactions were obtained as a result of the natural-sting method. In all cases multiple stings resulted in the maximum effect given for each group. The sensations are those reported by human subjects.

Vejovis flavus, a small light yellow scorpion of sturdier construction than *C. sculpturatus*, appears to be the only Arizona scorpion capable of producing an allergic reaction. The distribution of this species is consequently indicated by

the data given in 3f of Table I. One physician reports the following situation:

> "Site of sting, right arm below shoulder. Original site red. Systemic effects: Crouping and choking, swollen and protruding tongue; blue in the face; gasping for breath; swelling on neck level with ears, extending toward shoulders and from tip of chin to chest. Prompt relief was obtained by injection of adrenalin chloride, 1:1000 solution."

It is well to note that laboratory animals under the influence of *C. sculpturatus* venom always died more quickly when adrenalin chloride was administered.

The vital statistics, as given by the Arizona State Department of Health sheds further light upon our scorpion problem. As shown by Table II, scorpions have caused more than twice as many deaths as have all other venomous animals[1] and over four times as many as rattlesnakes. The Black Widow as a killer fades into insignificance. The 64 deaths from scorpion sting are distributed by counties as follows: Gila 8; Greenlee 4; Maricopa 32; Pima 3; Pinal 11; Santa Cruz 3; Yavapai 1; Yuma 2. The death in Yavapai was at Cottonwood, Arizona. A curious fact in the vital statistics is that in spite of the fact that deaths have occurred from January through August, and eight in October, for the twenty-year period there have been no deaths in the month of September. Scorpions are very active during this month and people are stung. Why, then, for a twenty-year period should no deaths have occurred?

Another phase of the scorpion problem that is frequently raised is that regarding the status of an anti-scorpion serum. This laboratory has developed an effective rabbit anti-scorpion serum but due to the lack of a suitable animal house[2] and a shortage of scorpions, manufacture of the serum could not be realized. Scorpions could be obtained in adequate numbers if they could be sent alive through the mails. The present mailing law makes it illegal and other facilities for transportation are not adequate. Senate bill 1886 was introduced by Senator Hayden making it permissible to mail scorpions. Our other representatives have supported the bill but to date, because of the opposition by the Postmaster General, the bill still lies in committee. So far the bill has not advanced although it has been shown that scorpions could be mailed without danger to postal personnel.

The above serum was developed as a result of the dissatisfaction that the profession registered with the Mexican serum back in 1939-40. Our laboratory tests in 1938 indicated that the Mexican serum was effective in neutralizing the effects of *C. sculpturatus*. The serum was recommended for use but later found to vary widely in titer. Not many months ago, as a result of the efforts of St. Monica's Hospital, Phoenix, the U. S. Dept. of Public Health approved the shipment into the U. S. of the Mexican anti-scorpion serum manufactured by the Mynn Laboratories. Following the death of a small child, given 10 ml. of this serum, the Poisonous Animals Research Laboratory of the Arizona State College was asked to assay some of the Mynn serum. All the

1. Centipedes of Arizona do not have a lethal venom. The death reported was due to secondary infection following the bite of a centipede.

2. The animal house is now being provided.

Table III

IN VIVO ASSAY OF MEXICAN ANTI-SCORPION SERUM, LOT U. S. No. 1A

Test No.	Date	Rat Weight	VENOM Weight in mg.	MLD	Time injected	ANTIDOTE Serum	Quan. in ml.	Time	Convulsions	Drooling	Time of Death	Observation time in min.
499	9/19/49	138.0	.26	1	3:05 P	none (control)			severe	severe	—	465[1]
510	9/31/49	145.5	.28	1	4:26 P	none (control)			severe	severe	5:20 P	54
500	9/19/49	177.8	.34	1	3:14 P	N	1	3:16 P	severe	severe	4:40 P	86
501	9/19/49	177.9	.34	1	3:31 P	N	2	3:33 P	severe	severe	4:12 P	41
502	9/19/49	208.0	.395	1	3:50 P	O	3	3:52 P	severe	severe	4:25 P	35
509	9/21/49	203.3	.38	1	4:15 P	O	4	4:17 P	severe	mild	5:05 P	50
511	9/22/49	167.9	.318	1	8:32 A	N	3	8:34 A	severe	severe	10:25 A	112
512	9/22/49	209.2	.397	1	8:52 A	N	2	8:54 A	severe	severe	OK	483[2]
513	9/20/49	183.0	.347	1	9:12 A	O	1	9:14 A	severe	severe	11:25 A	133
508A	9/20/49	227.8	none (control)			O	5	3:15 P	none	none	OK	98
508B	9/21/49	same animal 219.6	.41	1	3:43 P	none	—	—	none	none	OK	47[3]
508C	9/27/49	same animal 203.1	.386	1	2:21 P	none	—	—	severe	severe	3:24 P	63

1 At point of death at 6:55 P but recovered.
2 At point of death at 9:35 A but recovered.
3 Local effect and general nervousness.

Table IV

IN VITRO ASSAY OF MEXICAN ANTI-SCORPION SERUM LOT U.S. No. 1 A

Test No.	Date	Rat Weight	Mg of Venom	Antidote	Ml of Mixture	Incubation Time	Incubation Temp.	Time injected	Convulsions	Drooling	Time of Death
514	9/22/49	155.9	.296	O-serum	1.0	110 min.	Room	1:40 P	none	none	OK
522	9/26/49	175.6	.33	N-serum	1.0	53 min.	Room	4:45 P	severe	slight	8 P
525	9/28/49	152.5	.36	N-serum	0.2	24 hours	48°C	3:48 P	mild	severe	OK
526	9/28/49	158.2	.36	N-serum	0.5	24 hours	48°C	4:00 P	none	none	OK
527	9/29/49	210.4	.25	Heat	0.05	8 hours	48°C	4:42 P	none	none	OK
528	9/30/49	206.8	.39	Heat	0.09	24 hours	48°C	4:10 P	mild	mild	OK
531	10/ 4/49	200.7	.38	H_2O plus Heat	1.07	21¾ hours	48°C	1:55 P	none	severe	OK
532	10/ 4/49	177.6	.34	*Tricresol H_2O + heat	1.07	21¾ hours	48°C	2:12 P	none	mild	OK
533	10/ 4/49	165.3	.31	*Tricresol + H_2O	1.07	21¾ hours	Room	2:20 P	mild	severe	OK

* 0.3% Tricresol

vials received were of Lot U.S. No. 1 A; expiration date, June 5, 1951. The circular with this lot states: "The Antivenin Scorpion is a concentrated serum from which the most of the inert albumen has been removed."

"It is obtained from horses which have been hyper-immunized with the poison of the most toxic species of scorpion found in Mexico, such as: centruroides noxius Hoffmann, centruroides limpidus Karsch and centruroides suffusus Pocock."

"Its potency is determined according to the minimum lethal dosage of poison which it neutralizes."

"Each vial contains 5 c.c. of Antivenin, dosage that neutralizes 75 m.l.d. of poison."

The results of these tests are given in Table III. The "N" and "O" designations before the "serum" refers to "New" and "Old." Part of the serum seemed to have been exposed to undue heat in transportation and was accordingly marked as "old.' Both N and O were from the same original Lot U.S. No. 1 A. The assays, however, show only a slight difference between N and O. The M.L.D. for all the venom used was 0.19 mg. per 100 gm. rat body weight. In only one case, test No. 512, did an animal receiving serum and venom survive. This does not necessarily indicate a titer since one of the control animals receiving the M.L.D., test No. 499, also survived. Since we are dealing with M.L.D.'s this is to be expected. In tests 500, 501, 502, the animals died more quickly with an increased dosage of serum. In contrast to this, we see that serum injected 24 hours before venom, in test No. 508 A & B, provided the animal with complete protection. The immunity, however, was of short duration as shown by test 508 C.

In Vitro tests are recorded in Table IV. Tests 514, 522, 525, 526, seem to indicate a high titer since all but one of the animals lived and were relatively free of symptoms. However, the remaining tests show that most of the apparent titer was due to the heat and the serum preservative, tricresol. Other tests by this laboratory indicate that 0.3% tricresol in vitro will neutralize the lethal quality of the venom.

At a later date we hope to report research work that will throw light upon the nature of the physiological action of the venom.

To date, the most successful treatment of scorpionism in Arizona resulting from *C. sculpturatus* and *gertschi* has been to localize the venom and thus prevent symptoms, and symptomatic treatment by sedation. When the sting has been on one of the extremities, localization has been highly successful through immediate use of a tight tourniquet followed by cryotherapy. Crushed ice in water is generally used for the latter but successful control has been accomplished in the laboratory through the use of Ethyl chloride. After five minutes of cryotherapy the tourniquet is removed but the hand or foot, whichever the case may be, is left in the iced-water for a period of two hours. Where the treatment has been properly and promptly instituted untoward effects very seldom develop. Once in a great while the venom is accidentally injected directly into the blood stream. Under such a condition the prescribed treatment does not prevent the development of symptoms.

Symptomatic treatment through sedation for severe cases is successful only if the patient is completely relaxed. Sedation should be resorted to only after the convulsive state has been reached. Positive diagnosis of *C. sculpturatus* or *C. gertschi* poisoning in this respect is imperative. Sodium pentothol, sodium phenobarbital, etc., have been used with high success. They are commonly administered by the intra-venous

route in quantities large enough to produce complete relaxation. Although a rule-of-thumb as to dosage of sedation required for combating the effects of an accidental injection of a neurotoxin cannot be given, yet in general it has been found that even an infant may take as much as 5 grains before adequate sedation is realized.

Another part of our problem is that of scorpion control. Detailed instructions in this respect have been given elsewhere.[1] In order to make the recommended program one hundred per cent effective the following scorpiocide has been formulated:

2% Chlordane (refined)
10% DDT
0.2% Pyrethrum

These compounds have as their carrier, diluent, and spreader the purified kerosene known as Odorless Spray-base. The first two ingredients are residual toxicants. Consequently, the solution should be sprayed on like a paint. The so-called "flit type" or fog-producing sprayer is undesirable. The ordinary vacuum cleaner sprayer is excellent. The oil base completely evaporates, leaving the invisible toxicant. This residue is not great enough to prove dangerous to children or other mammals.

For the physician there frequently exists the problem of scorpion identification. To assist in this process this laboratory has embedded *C. sculpturatus* in plastic. This mount is available to the physicians for the asking. In addition to this we have written a booklet entitled "Scorpions." This publication is sold by the Arizona State College Bookstore, Tempe, Arizona. The services of the laboratory are also available to the physician in the identification of poisonous animals in general. For small animals such as scorpions, insects, etc., the dead specimen can simply be wrapped in waxed paper and mailed to the Poisonous Animals Research Laboratory, Arizona State College, Tempe, Arizona.

1 From "Scorpions", H. L. Stahnke, 1949, Arizona State College Bookstore, Tempe, Arizona.

Last but not least, we have a problem of public education. Here the physician can help greatly by assuring his patients that something can be done about scorpions and their poisoning. Also from the standpoint of conveying correct concepts, scorpion accidents should be referred to as "stings" and not "bites." Scorpions, ants, wasps, bees, etc., use a caudal appendage to inject their venom, or "sting" their victims. Spiders (the black widow and tarantula), kissing-bugs, lice, bed-bugs, mosquitoes, snakes, etc., use cephalic appendages, or bite their victims.

By way of summary, we note that the scorpion problem of Arizona is shown to be somewhat complex. Over 2,500 people are stung annually. One lot of Mexican anti-scorpion serum was shown to be actually detrimental to the welfare of animals injected with *C. sculpturatus* venom. At present the best treatment for scorpionism seems to be a tight tourniquet plus cryotherapy for the prevention of symptoms and symptomatic treatment by means of Sodium Phenobarbital to the point of complete relaxation. At present the manufacture of the rabbit and anti-scorpion serum developed by the Poisonous Animals Research Laboratory is prevented because of an antiquated anti-scorpion mailing law. Senate Bill 1886 introduced by Senator Hayden to correct this condition is being opposed by the Postmaster General.

Scorpion control measures have been suggested that are one hundred per cent effective The physician is also offered assistance in the identification of scorpions through the use of plastic-mounted *C. sculpturatus,* a scorpion booklet, and the direct services of the Poisonous Animals Research Laboratory of the Arizona State College, Tempe, Arizona.

A final phase of the scorpion problem is public education through the development of a proper psychological attitude as well as correct scientific expressions.

LOWER NEPHRON NEPHROSIS

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IT has been frequently observed that shock may be accompanied by renal damage with suppression of urine and azotemia which sometimes leads to death. The involved kidneys show pronounced parenchymatous degeneration with necrosis of the tubular epithelium. In those cases in which a condition of shock lingers for several days, there may supervene a picture of

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renal insufficiency. The urine is dark; has a high specific gravity and contains albumen, casts, both granular and hyaline, and red blood cells. There may be an elevated blood pressure and progressive retention of nitrogenous products. The clinical picture is that of uremia. The lesion has been described in detail by Lucke.[1] There is pigment deposit in the distal renal tubular lumina, degenerative changes in the tubular epithelium, interstitial inflammation and practically no anatomic changes in the glomeruli.

The condition of shock leading to transient or more serious renal damage is not limited to trauma or burns. Harkins[2] listed more than thirty conditions in which shock may develop. These included burns, freezing, vascular occlusions, intestinal strangulation, heat stroke, radiation burns, sunburn, bile peritonitis, visceral perforations, the effects of various drugs and poisons, venoms, anaphylaxis, transfusion reactions, etc. Volhard & Suter[3] describe renal injury as a result of indirect trauma, and state that this may be due to fright and to extra-renal injury. Claude Bernard showed in 1859[3], upon an experimental basis, that stimulation of the peripheral ends of the splanchnic nerves leads to diminished urinary output through a reduction of capillary blood flow through the kidneys. Cohnheim and Roy in 1883[4] showed a similar effect obtained with central stimulation of sectioned sensory nerves such as the vagus and sciatic. Bradford in 1889[5] was also able to obtain splanchnic constriction by stimulation of the dorsal roots from the level of the 6th dorsal root to the 2nd lumbar. Bieter (1930)[6] found that there was both an intermittency of glomerular flow and of capillary flow within the glomerulus, and that after splanchnic section this intermittency, for the most part, disappears.

These studies prove that the circulation of the kidneys is under direct control of the splanchnic nerves and that stimulation of these nerves can produce renal ischemia. Volhard & Suter[3] further claim that circulatory albuminuria, with or without cylindruria, and microscopic haematuria of short duration occurs with each angiospastic ischemia of the kidneys. Starr (1926)[7] has shown that adrenalin in adequate dosage for sustained action leads to albuminuria in normal rabbits, and that healthy cats irritated to rage or stimulated to fear have in consequence an albuminuria. He also found that anesthetized dogs, after adrenalin, CO_2, or splanchnic irritation develop albuminuria corresponding in severity to the grade and duration of the partial obstruction of the renal artery, the albuminuria persisting when vasoconstriction of the renal vessels is maintained. In man, he found that, following doses of ephedrin sufficient to raise the blood pressure, there was an albuminuria occurring at the peak of the blood pressure rise.

As cited by Volhard and Suter[3] there are innumerable instances in the literature of oliguria, anuria, or albuminuria and cylindruria in man following chilling of the body by immersion in cold water.

From the foregoing studies and observations it can be definitely assumed that disturbances in normal renal function may result from direct or indirect stimulation of the splanchnics. Whether or not the mechanism underlying each of these various functional albuminurias and cylindrurias is the same is still a mooted question. By some the condition is thought to depend upon renal ischemia resulting in kidney damage; by others, it is thought to result from acidosis in which the increased acidity alters the permeability of the renal cells to blood proteins.

Volhard and Suter[3] further claim that renal injury may result from indirect trauma, citing a number of cases from the literature to substantiate this view.

Husfeldt & Bjering[8] in 1935 described the pathological findings in two cases of marked traumatic shock in which death was due to uremia one week after the accidents. They could not determine whether the renal injury was due to local circulatory disturbances during the state of shock, leading to irreparable injury of the renal tissue or whether a constant resorption of substances from the bruised tissue took place after the shock, exerting a direct toxic influence on the renal epithelium or maintaining a spasm in the blood vessels. They favored the view that renal ischemia was responsible for the damage because of (1), the remarkable emptiness of the glomerulus vessels on microscopic examinations; (2), the surprisingly slight histologic changes in the kidneys; (3), the increased blood pressure noted as early as the day after the accident; and (4), the results of function tests, showing that the disturbance did not appear until three days after the shock which they felt is incompatible with the idea of injury to the

renal parenchyma during the state of shock itself.

In more recent observations, Moon and Kennedy[9] and Martineau and Hartman[10] agree that the main renal damage is in the convoluted tubules with relatively little damage to the glomeruli. There is often congestion of the capillaries and venules and lesions due to infection. In eight out of 20 cases of renal damage following burns, Martineau and Hartman cite pyelonephritis.

Moon[11] concludes from his studies that since the same pattern of degenerative changes develop in shock from anaphylaxis, transfusion with incompatible blood, asphyxia and anoxia of various type, coronary occlusion, heat stroke, and low atmospheric pressure, the effects in these conditions cannot be explained satisfactorily as due to toxic agents. He concludes that other factors such as neural influences or anoxia play an important role.

In the fatal cases death may be due to circulatory or renal failure or from their combined effects. When survival occurs, polyuria may supervene with complete recovery. In these cases, the tubular epithelium regenerates and there are no residual alteration,s either morphologic or functional, in the kidneys.

In an attempt to explain the "crush syndrome", Franklin, Barkley, Daniel, Trueta, and Pritchard[12] performed some blood circulation experiments on rabbits. They discovered that the blood circulating through the kidneys has an emergency detour. When circulation to the cortex is impeded, the blood by-passes the cortex and flows through the bigger vessels in the renal medulla. It has been suggested that this vasomotor mechanism may underlie the renal cortical ischemic injury of crush syndrome and allied states and that the prevention of renal injury due to this mechanism may be accomplished by blocking renal vasomotor pathways. This may be done by splanchnic block and high spinal or caudal anesthesia.

Although it has been assumed by many observers of this condition that some substance released into the blood stream from the injured muscles such as myoglobulin is responsible for the renal damage, it must be kept in mind that there is frequently, if not invariably, a renal ischemia and that this factor plays an important part in producing the disease.

Whatever the cause of the syndrome, the sequence of events in the severe fatal cases is much the same. A typical case in which shock appeared to be the primary factor serves as an example:

Case I. A 16-year-old boy was in an automobile accident in which he sustained a broken leg and multiple bruises. When first seen he was in profound shock with a blood pressure of 88/60, pulse of 110, rapid, shallow breathing, and he was pale and sweating profusely. He was treated with morphine and plasma intravenously. The urine at this time showed a trace of albumen, numerous hyaline and granular casts and rare red blood cells. The non-protein nitrogen was 20 mgm. %

The next day he appeared better but there was complete suppression of urine, the blood pressure had risen to 140/90 and the blood NPN was 54 mgm. %. During the next two or three days, he voided very little urine, the blood NPN mounted, there was the appearance of edema and mounting blood pressure. He died on the seventh day following the injury in uremia. It is to be noted that in all these cases albuminuria occurs early and in the fatal cases there is a permanent suppression of urine. But there are cases in which the urinary suppression may be followed in a few days by diuresis and rapid recovery. But the signs of returning function may not appear until the end of the second week.

The following cases illustrate the fact that renal injuries following trauma accompanied by shock may be minor and reversible in character:

Case II. A ten-year-old white male was admitted to the hospital following an automobile accident that day. The car was not overturned but he struck the small of the back forcibly against the side of the rumble seat. Periodic urine examinations had been always negative previous to the accident. On admission, examination revealed a well-developed boy who was in moderate shock. He was pale, almost hysterical, and complained of slight lumbar pain, more marked on the right than the left side. Over the right lower back there were some superficial skin abrasions with a small bruise. There were no other outward evidences of injury and physical examination was otherwise negative. The blood pressure upon admission was 80/60.

The urine showed specific gravity of 1.016. There was a trace of albumen and the sediment showed numerous hyaline and granular casts with a few epithelial casts. There were no red blood cells. The following day, an Addis count showed the presence of 1,800,000 granular casts; 8,500,000 epithelial casts, and a rare red blood cell, too few to count. Daily Addis counts thereafter showed a progressive drop in casts and

epithelial cells and four days after the accident, the urine was normal.

During the first two days, there was marked oliguria and the non-protein nitrogen of the blood was 45 mgm. %. Blood pressure rose to 120/70. On the fifth day following the accident, all the renal functional tests were normal. The boy then remained asymptomatic for five days. On the tenth day following the accident he suddenly developed fever and on the following day an acute pyuria was discovered. For a period of six days he ran hyperpyrexia, the temperature ranging from 102° to 105° and both from a clinical and laboratory standpoint his course was that of an acute pyelitis. His blood pressure remained normal throughout this phase of his illness. The urine was characterized by pyuria, low-grade hematuria, and albuminuria. There were no casts and cultures of the urine uniformly revealed a colon bacillus. His maximum white count before defervescence was 14,500 with a differential of 84% polymorphonuclears. Renal functional tests were all normal. Physical examination was essentially negative except for slight tenderness, sometimes over one kidney region, sometimes over the other. His temperature dropped on the seventh day of his illness and he made a complete recovery. Cystoscopic examination, two days after he was afebrile was negative except for revealing that the pus came from both ureters.

This case illustrates the occurrenc of renal damage following traumatic shock complicated by pyelitis or pyelonephritis. It is unlikely that there could be any other explanation for this boy's renal injury.

Case III. A forty-year-old obese female was seen soon after she had fallen from a horse. She was in a great deal of pain and shock. The blood pressure was 92/64. The pulse was rapid and x-ray studies revealed a fracture of the pelvis. On the day of the accident, her urine showed a trace of albumen. There were numerous hyaline and granular casts. There was marked oliguria for two days and blood non-protein nitrogen rose to 50 mgm. %. Blood pressure was 140/90. Three days later, the fluid output was again normal and in five days the urine was free of albumen and casts. The blood pressure after recovery was 110/80.

In this, as in the second case, there was evidence of reversible renal damage following an injury complicated by shock.

Transient albuminuria and cylindruria have been observed in three other cases following injuries. In all these cases, the urinary abnormality persisted for only a short time and there was no persisting nephritis.

CONCLUSIONS

It can be assumed that minor renal injuries can frequently occur following accidents in which the kidney has not been directly implicated. In Case II, it seems reasonable to assume that the kidneys became the seat of a colon bacillus infection. As has been shown by Loncope and Winkenwerder[13] and others, many of the so-called cases of pyelitis are in reality cases of pyelonephritis in which there are focal abscesses of the renal parenchyma. Longcope has further shown that in this condition, repeated infection may lead to progressive renal damage with a terminal picture indistinguishable from true nephritis.

In all these cases, it is interesting to note that the urine showed evidences of renal damage immediately after the accidents and there was a disappearance of symptoms in from two to four days. It is apparently only in the more serious injuries with profound and lasting shock that the kidneys are fatally damaged.

In addition to a rapidly developing azotemia and hyperphosphaturia with a mild acidosis following the initial period of shock, there is a marked increase in plasma volume even in the absence of demonstrable clinical edema This increase seems to be due to the retention of fluids and, from a therapeutic standpoint, contraindicates the forcing of fluids.

TREATMENT

There are three phases in the clinical course of the syndrome of lower nephron nephrosis and adequate treatment of this condition demands a clear understanding of these phases: (1) There is the initial phase of renal damage during which there are often the symptoms of shock with a rapid pulse, a drop in blood pressure, hemoconcentration. During this phase there is renal ischemia due to splanchnic nerve stimulation. Prompt, energetic measures are required early to combat shock as the first aim of therapy is to limit the extent of renal damage as far as possible. The first step is to replace lost blood and fluid in order to improve renal blood flow and renal function. In experiments on dogs, it has been found that these animals can tolerate complete renal-artery occlusion for as long as three hours without irreversible damage. (Hamilton P. B. et al)[14].

Blood and fluid replacement must be done early since serious renal injury may be avoided by adequately combatting shock. It is also im-

portant to control pain by the proper use of sedatives.

In cases of trauma, pressure-bandaging of the affected part has also been found to be of value (Corcoran, A. D., and Page, I. A.)[15].

(2) The second phase of renal insufficiency follows the period of shock and is characterized by oliguria or complete anuria, a rise in blood pressure and a mounting azotemia and hyperphosphatemia. There is usually a mild acidosis as reflected by lowered carbon dioxide combining power of the plasma. It is of great therapeutic importance that during this phase there develops a marked increase in plasma volume even in the absence of demonstrable clinical edema. This increase seems to be largely due to the discrepancy between fluid output and fluid intake and emphasizes the usual mistake of administering too much fluid and electrocytes. In cases in which recovery occurred and in which it was possible to make serial measurements, it was observed that the time of maximum plasma volume increase coincided with the time of greatest nitrogen retention and as the retained nitrogen was decreased the plasma volume returned to normal (Mallory, T. B. et al).[16]

Treatment during this phase of renal insufficiency is based on attempting to maintain a near normal state of hydration by administering fluids equal to an estimated insensible loss of about 1000 c.c. plus the volume equal to the urinary output. In view of the elevated plasma volume the attempt to force fluid output by administering large quantities of fluid may only result in pulmonary edema. Because of the fact that sodium has water retaining properties, salt solution should be used sparingly. It is probably wise to restrict the sodium chloride to 2.5 gm. or less unless excessive sweating, vomiting, or diarrhea occur.

It is debatable whether the furnishing of sodium bicarbonate in daily doses of four to six grams is of value in the combatting of acidosis. But it is obvious that too liberal doses of alkali during the period of renal insufficiency may be dangerous by precipitating the tetany of alkalosis.

The error of treatment in the past has been due to the lack of realization that the anuric patient cannot excrete water except to a very limited degree in the breath, sweat, and stools. The anuric patient is also unable to excrete potassium which increases in concentration in the plasma until dangerous or fatal levels are reached. Thorn[17] uses a very sensible course of treatment during this phase of the disease. He advocates the careful restriction of fluids so that no gain in body weight is observed during the period of anuria. He limits the fluids to 1000 to 1500 c.c. for twenty-four hours, in the absence of fever or fluid loss from vomiting or diarrhea.

The provision of as high a caloric intake as possible during the early stage of anorexia and vomiting such as 15 per cent glucose infusion will reduce endogenous protein breakdown.

The use of small quantities of plasma (½ unit) in the glucose solution will maintain blood volume and prevent excessive fluid dissipation into the extracellular spaces. Digitalization should be accomplished at the first evidence of cardiac failure. By this conservative routine, spontaneous diuresis may be affected by the tenth to the twelfth day in many cases and recovery ensue. There have been many instances of such recoveries in the literature (Kugel)[18], (Macgraith, et al)[19], (Muirhead and Fromm).[20]

But there are deaths from this disease in the third phase when diuresis sets in if the proper treatment is not instituted. Burwell, Kinney, and Finch[21] point out that the second peak in the mortality rate in cases of lower nephron nephrosis occurs on the tenth day regardless of the fact that many of the patients had shown a spontaneous diuresis at that time. As suggested by Thorn[17] this is probably related to the development of hypochloremia and subsequent dehydration at a time when the renal lesion is actually improving but normal function has not been completely established. As the diuresis develops, and the patient exhibits clinical signs of extracellular fluid deficit, additional salt and water must be given intravenously. The amount of saline given depends upon what has been lost. The diet best adapted to the treatment of lower nephron nephrosis is one that is low in protein and high in carbohydrate and fat.

Measures designed to remove nitrogenous and other waste products from the blood by dialysis merit consideration. Peritoneal dialysis has been used by Seligman, Frank, and Fine[21, 23] in the treatment of acute renal failure and by Goodyear and Beard[24] and Muirhead, et al[25] and others. The clinical application of this form of treatment is becoming a widely accepted procedure but there is danger in its application, for

unless care is taken to avoid electrolyte and water unbalance and infection, the results may be disastrous. The dialyzing fluid must be prepared in great volume. The composition of the fluid must be carefully planned to contain all the ingredients of the plasma. Glucose is added to prevent the loss of blood sugar, and as an osmotic balance to avoid the undue absorption of water, heparin is usually added to the fluid to slow the deposition of fibrin but the efficacy of dialysis falls off rapidly after three to four days. In spite of great care in the technique of this procedure, there are cases reported of a complicating peritonitis and others in which fluid retention with edema occurred in the course of the peritoneal dialysis. To combat some of the complications, Reid, Penfold, and Jones[26] have successfully used intermittent peritoneal irrigation for control of peritonitis. These authors are against the use of penicillin which they find irritating to the peritoneum.

With the recognition of lower nephron nephrosis and toxic nephrosis in recent years, attempts have been made to free the blood of nitrogenous wastes by means of artificial kidneys. Alwell[27], Murray[28], Kolff[29] have applied them successfully in cases of renal failure. At present the artificial kidney appears to have promising therapeutic possibilities but its use is not without risk. It has not been developed to the point where it can be generally used.

It has been repeatedly proved that splanchnic nerve stimulation can divert the renal circulation from the cortical glomeruli. Trueta et al[30] and many others have demonstrated that this effect is reversed after section of the splanchnic nerves. The same result may be obtained by spinal anesthesia. Spinal anesthesia has been used successfully in cases of acute oliguria and anuria by O'Sullivan and Spitzer[31], Robertson[32] and others. But in order to be successful, this method of treatment must be used early before the renal ischemia has produced renal damage.

Other methods of treatment such as intestinal lavage and renal decapsulation deserve mention but have not been shown to be of real value in the treatment of this condition.

SUMMARY

1. Acute renal insufficieney due to lower nephron nephrosis may result from many clinical conditions and is usually preceded by shock and renal ischemia.

2. The syndrome is characterized by three phases; the first of shock with evidence of renal damage, the second of renal insufficiency with oliguria or anuria, and the third of diuresis and renal recovery.

3. Treatment is unsuccessful in many cases. In those successfully treated a plan has been followed which takes the three separate phases into consideration:

In the first phase, the treatment of shock with plasma or blood transfusions is important, as well as the control of pain. It is during this phase that splanchnic block by spinal anesthesia may be of value.

The second phase is best treated by the limiting of fluids and the judicious use of salt. Such measures as peritoneal dialysis and the artificial kidney may be of value during this phase.

The third phase of diuresis is best treated by adequate fluid and electrolyte replacement.

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PREGNANCY FOLLOWING PATENT DUCTUS ARTERIOSUS LIGATION

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AS the average life span has increased twenty years in a matter of some five decades; as improvements are perfected whereby infertility, prematurity, infection, and physical maladaptations are becoming less hazardous to survival; in short, as artificial technics are thwarting the old law of "Survival of the Fittest," intriguing problems in the fundamental equipment of the organism are being presented. Women are living who, heretofore, had been given up for lost by all save a few parents and farsighted scientists whose faith was not limited by the scientific horizon. An obvious and familiar example is that of the conquest of diabetes. A less familiar field is that of surgery involving the heart and its vessels.

Cardiac surgery is a relative infant. As Sherman[1] remarked in 1902 before the American Medical Association, "The road to the heart is only two or three centimeters in a direct line, but it has taken surgery nearly twenty-four hundred years to travel it."

The patent ductus arteriosus, a small vessel less than an inch in length, and but a few centimeters from the surgeon's stethoscope, had successfully defied all attempts at tampering until Gross[2] in 1939 first dared to attack this small remnant of nonatresia. Since then much has been accomplished in the field of cardiovascular surgery, star-studded by tremendous studies and endeavors such as the rapidly-spreading Blalock-Taussig operation for stenosis of the pulmonary artery[19]; the thorough analytical work of Abbott[3] with a review of one thousand cases; the superb monograph by Taussig[8]; the pioneering cardiovascular physiological studies of Holman[20]; and many others. It is now estimated that there are approximately twenty thousand people in this country with patent ductus arteriosus, which places this abnormality second in incidence only to intracardiac septal defects. There are probably between thirteen and eighteen thousand female persons to be considered because of this lesion, since the defect is curiously two or three times more common in female than in male patients.[4] Thus we can see the rapidly increasing importance of this lesion in our medical problems.

Heart disease is now the leading cause of maternal deaths.[2] Three per cent of obstetrical patients have heart disease, producing a mortality rate of twelve to fourteen per thousand in this group. Many articles mainly concerning rheumatic heart disease, which has an incidence of over ninety per cent as opposed to less than five per cent of congenital heart disease, have been written on the care and management of the cardiac patient in pregnancy, therefore, that entity is not to be discussed in this paper. Nor is the fairly rare situation of a pregnant patient with an untreated congenital cardiac defect being considered. Rather, the somewhat more interesting situation of an isolated, specific, congenital defect, namely patent ductus arteriosus which has been surgically treated, is the subject of this article. It is our belief that this situation will become more frequent in the next few years, and it is our obligation to be anticipatory as well as reflective.

Briefly, the clinical picture will be reviewed, the inevitable and incidental loads exposed, and the management and prognosis discussed.

It is well known that the ductus, although functionally closed (as evidenced by absence of a murmur or other symptoms), may remain organically open almost to puberty. Most of the leaders in cardiology, however, are beginning to advocate intervention prior to the tenth year, even if asymptomatic, because of a poor longevity prognosis, possibility of subacute bacterial endocarditis, heart failure, and other more remote complications.

We are all acquainted with the clinical picture. The continuous machinery murmur, heard best in the pulmonic area, accentuated in systole and virtually diagnostic of the malformation once it develops, peripheral signs of aortic insufficiency, heart failure, polycythemia, increased pulse pressure, lack of cyanosis and clubbing, and the other minor signs, make this a rather simple condition to identify.

What are the factors, if any, which would

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make such a patient more susceptible to an unfavorable outcome than a normal pregnant woman? Let us now consider the inevitable load, in which our patient must participate.[10]

The normal cardiac load is said to increase fifty to sixty per cent during pregnancy,[11] albeit the machanism is not yet completely agreed upon by all authorities. Increase in weight[12] is fairly obvious as a cause of increased cardiac work. The effect of the mechanical pressure of the growing uterus on the work load of the heart, largely hypothetical, include the effects due to diaphragm elevation, pressure on the relatively thin right ventricle, twisting of the great vessels at the base of the heart, limitation of respiratory function and, thereby, reduced aspiration by the thoracic veins. The growth of the uterus, hypothetically speaking, causes increased cardiac work by increasing the endothelial area involved: pressure upon the large pelvic vessels in certain positions might impede blood flow. The evidence furthermore indicates that in the last trimester the heart has to carry a load of circulating blood which is four hundred to twelve hundred cubic centimeters greater than in non-pregnant state.

Functional and structural changes in peripheral blood vessels during pregnancy may cause increase in cardiac work. With this in mind, Kyrieleis and Schroeder examined two hundred pregnant women whom they considered free of toxemia, and in many of these they found a general narrowing of the retinal arteries.

The strain of delivery, whether per vagina or by laporotomy, and the reparative processes are fairly obvious increases in cardiac load. Therefore, the cardiac reserve is of even greater importance than heretofore in assessing indications and contraindications for operative deliveries. It is interesting to note from several later authors, incidentally, that in rheumatic hearts, the decompensation occurs with apparently increased frequency in the seventh and eighth months, rather than at term.[12]

The growing fetus requires additional nourishment and oxygen, for which the normal reserve would ordinarily suffice; however, if the reserve is not there, the extra one one-hundredth of a calorie per beat, as estimated by Jensen,[12] is an adverse factor to be considered.

As has been indicated, the cardiac minute volume has been shown to be increased. Likewise the sedimentation rate is markedly increased as originally observed by Fahreaeus. Findings in capillary pressure, capillary permeability, and the permanent vascular changes have not yet been proven, in spite of many opinions expressed for their increase. There is no conclusive evidence that the viscosity of the blood is increased in pregnancy.

Increased metabolism naturally increases the cardiac work. In pregnancy there is an increase in oxygen consumption which may accelerate by twenty-five per cent the basal metabolic rate. While a high foetal metabolic rate and increased respiratory work may be factors in producing this increase, there is much evidence that overfunction of the thyroid gland is an important cause, resulting in increased cardiac work similar to that seen in thyrotoxicosis.[12]

The effect of the vital capacity[12] is still debatable. MacKenzie in 1904 indicated by actual measurements that what the lungs lose in vertical they gain in lateral excursions.[12] Alward in 1930 published readings showing a definite tendency for the vital capacity to decrease to about twenty per cent below estimated normal just before labor. Others corroborate these findings. (Still other modern authors have found an unmistakable upward trend in vital capacity during pregnancy amounting to about six-tenths of one per cent per week.)

The incidental loads result from a variety of sources, such as infection, obesity, anemia, physical and mental strain, subacute bacterial endocarditis developing on a roughly tied ductus, and so forth. Unique loads in the presence of untreated cardiac defects are imposed by the fact that forty-five to seventy per cent of the total blood volume expelled from the left ventricle is short-circuited back to the heart[9], which increases the work of the right ventricle by two to four times and consequently produces hypertrophy.[13] The dangers of heart failure are the same that beset the patient with a peripheral arteriovenous fistula, and depend upon the amount of blood short-circuited, that is, on the diameter of the shunt; and these could become significant should recanalization occur during pregnancy.[15] Anoxemia may be an even greater hazard in congenital heart disease than it is in rheumatic heart disease.

This briefly reviews the inevitable and incidental loads which may be thrust upon the heart in pregnant women. How, then, does the normal heart respond to these loads?

There is a tendency for the heart to increase in size within normal limits as pregnancy advances, the ratio of heart weight to body weight remaining fairly constant. Certain animal experiments indicate that the heart may be able to accommodate itself to increased work without hypertrophy; specifically by increasing its capillary circulation.[12] Cardiac dilatation so far has not been proven. Pregnancy draws upon the cardiac reserve, and the heart, if constitutionally inferior, may easily develop cardiac insufficiency. This may closely resemble heart failure due to organic disease.

What are the points to be considered in the management of pregnancy following such vascular surgery? Actually this seems to be a problem which so far is less troublesome than that of practically any other cardiac pathology. Whether the ductus is essential for circulatory maintenance will become evident at the time of ligation, if not sooner. The recovery from the operation is rapid and complete, as would be expected from the removal of a parasitic circulation, provided there are no other associated anomalies. The patient, then, will present herself in a relatively normal condition. It is conceivable that the age at which ligation was performed should be important, as it would affect the readjustive powers of the heart. For example, a dilated heart is a poor factor to the success of this operation, and the obstetrical risk would be adversely affected. Furthermore, recanalization in the face of pregnancy imposed on recent cardiovascular surgery is a potential problem.

Finally, in the management of a patient, either with patent ductus arteriosus or following surgery on this vessel, we should first carefully ascertain her true cardiac status. This can be done by the use, first, of one of the most important tools of our trade, a careful history. Any point in the history touching on cardiac strain should definitely be noted and evaluated. Second, auscultation may detect some second sound accentuation, a murmur, either systolic or diastolic, and arrythmia—rare, but important in postoperative cardiac evaluation. The electrocardiograph, although not specific in this maladaptation, may show some lengthening of the P-R interval, prominent Q waves in leads I and II, axis deviation, and so forth. However, as Jensen summarizes, the "irregularity with which the heart is displaced precludes any regular occurrence or sequence of the electrocardiographic changes."[12]

Roentgenograms may show some enlargement in the region of the pulmonary artery and conus of the right ventricle, and fluoroscopic examination may or may not show conspicuous pulsations in this region; however, these findings are inconsistent even before ligation of the ductus, and their principal value would be in demonstrating recanalization.[12] Thus we see that as far as cardiac evaluation is concerned, we are at best determining two things: (1) the presence or absence of recanalization and (2) the functional adaptability of the heart as estimated by work load.

The second step, of course, is evaluation of the patient as an obstetrical risk. This procedure is an accepted corrollary in every gestation, and it is not the purpose of the paper to delve into this realm.

The final step is that of so-called active waiting. Extra care should be exercised in avoiding the incidental loads, such as anemia, excessive hydration, and fatigue, as these are notoriously prominent in lowering resistance, inviting infection, and adding work load. Some authorities believe that frequent vital capacity determinations, relative only to the same patient, are valuable indices as to the safety margin. Cardiac output (pulse pressure times pulse rate), respiratory minute volume, oxygen tension, exercise tolerance tests, and many other miscellaneous and as yet unproven tests have been devised to evaluate cardiac reserve[16]; each of us has his own preference.

The patient should be watched carefully, and, at the first sign of lowering of cardiac reserve, should be immediately hospitalized and actively treated, just as any other cardiac patient would be treated. As the work load seems to be at its peak in the early phases of the last trimester, the condition of the patient should be evaluated more frequently during this period and her activities curtailed accordingly. The puerperium with its extra work load can be somewhat moderated by the judicious use of parenteral electrolytes and fluids, controlled by concentration studies on the blood for correct orientation.

What is the prognosis? No one knows. So far, the author has been able to discover only one pertinent case recorded in the literature.[15] This thirteen-year-old girl was operated on in

December 1939 and again in April 1941, the latter time for recanalization. To quote: " . . . the child has grown to young womanhood, has married, and has had one child." A personal communication from Dr. Helen B. Taussig[7] stated: "If the patient has been successfully operated on for a patent ductus arteriosus, and the ductus has been divided, the patient should go through surgery quite as well as any other patient with a normal heart, and if the ductus has been firmly and successfully ligated I think the same should be equally true of pregnancy unless the patient became pregnant a short time after operation. I would not suppose that pregnancy would cause the ductus to reopen. It has been our experience that if a ductus is going to reopen, usually it reopens relatively soon after operation, probably within the first six weeks. For my part, I would not advise pregnancy until six months after ligation of the ductus, but thereafter I should think it would be entirely safe." It seems that, if the operation has been completely successful from the surgical standpoint, there is practically no gestational risk.

The author believes that an obstetrical patient of no undue obstetrical risk, with a history of successful surgical ligation of a patent ductus arteriosus prior to her pregnancy, should be allowed to go unhampered through gestation, provided that the obstetrical load both inevitable and incidental plus fifty per cent, would not place her in a class III cardiac status. The ability to assess this point involves, of course, the total of the medical knowledge available, and to date it would seem that such total is adequate for only the extreme cases.

REPORT OF CASE

Mrs. E. R. G., a 22-year-old white married primigravida with an estimated date of confinement on 22 May, 1949, presented herself on 19 October, 1948 with a history of having had a ligation-in-continuity of her patent ductus arteriosus on 18 July, 1947, 22 months prior to estimated date of confinement.

Past History: Since 1939, the patient had been working her own way through school and marriage, her husband being a student. The patient was said to be somewhat anoxic at birth; had had measles and pneumonia in her childhood; and at the age of 18 had had scarlet fever. During this illness the cardiac murmur was first noted, diagnosed as rheumatic heart disease. Also, cholelithiasis was diagnosed by X-ray at the same time, but the patient had been asymptomatic in this regard. The patient has several certificates attesting to her athletic achievements, including swimming the quarter and the half mile, skating, etc.; however, she states that her endurance has never been that of her associates. Otherwise, her history was non-contributory.

Physical Examination: Examination revealed a well developed, fairly well nourished, delicate appearing white girl, who appeared to be excessively anxious. She was a tonsillar, had corrected vision, and dulling to auscultation and percussion in the left posterior lung field, a thirty-seven centimeter well-healed thoracic scar and partial rib resection on the left. She also had tenderness in the gallbladder area, mild erosion of the cervix, borderline narrowing of the inlet, evidence of first trimester pregnancy, and mild multiglandular dyscrasias, including hypothyroidism, hyperinsulinism, hypoadrenia, and hypoovarianism. She was estimated functionally to be a Class II cardiac. Her temperature was 98.6F, pulse 72, respirations 20, blood pressure 108/72, weight 135 lbs., fundus at 5 cm.

Laboratory Studies: Rh positive, Kahn and Mazzini reactions negative, normal complete blood count and urinalysis, normal EKG, vital capacity uncorrected of 3 liters, and roentgenograms of the chest suggestive of a cardiac defect.

Course: For the first four months she presented the usual signs of pregnancy, plus some dyspnea, with a fourteen pound weight loss and recovery. She developed an upper respiratory infection in her fifth month, which in turn induced anemia. Both responded well to symptomatic treatment. The fetal heart tones were heard in February, two weeks after quickening, and continued to be normal throughout gestation. In the sixth month the patient developed dyspnea and backache on exertion, and gave some evidence of increased cardiac enlargement. The EKG showed increased cardiac strain, and the vital capacity dropped to 2.3 liters. It was learned that she was maintaining a two-story house for four people, including one bed-ridden elderly man and a cardiac-invalid elderly woman; doing the cooking, laundry, ironing, and shopping for the entire group. With bed rest, dehydration and sedation, and removal into a house trailer, she responded promptly and well, in spite of which a close surveillance with frequent visits was maintained throughout the gestation. On May 31, 1949 she was hospitalized for one day in false labor. On June 19, 1949, four weeks beyond her estimated date of confinement, she began having mild pains and passing a few small blood clots per vagina, with a high presenting part. Fetal heart tones were good. There was no dilatation. The fetal position was LOP. There had been no abnormality in her blood pressure or urinary findings throughout the pregnancy. She then had approximately thirty-four hours of desultory labor, with very little progress, and continued

vaginal spotting without cervical dilatation. The blood studies revealed 80% hemoglobin, 3.85 million red blood cells, 13,200 white blood cells with 73% segmented cells and coagulation time of 3 minutes. Urine was negative. X-ray pelvimetry showed an increase in the anterior curvature of the lower sacrum and coccyx which reduced the posterior saggital dimension of midpelvis to 3.8 cm., however, the bispinous was 12.5 centimeters. Because of the bleeding, lack of progress after 30 hours of labor, posterior position, and increase in fetal heart rate from 130 to 160 per minute, consultation was obtained and a low transverse laparotrachelotomy under spinal anesthesia was performed. The placenta was removed from the lower left segment and showed evidence of a 4-5 centimeter area of separation.

Postoperative: The baby was normal in all respects, weighed seven pounds eleven ounces, and regained birth weight prior to dismissal on the seventh day, being an active nurser throughout. The patient "dangled" the first day, and was ambulatory thereafter. She underwent a period of low grade hysteria accompanied by her highest temperature of 102 degrees F. on the second postoperative day, but recovered rapidly and soon began to lactate. The subcuticular wire suture was removed on the eighth postoperative day and the patient was dismissed from the hospital in excellent condition, with heavily-lactating breasts. There was no edema or sign of cardiac decompensation at any time following the eighth prenatal month, and including her six weeks checkup, at which time the pelvic organs were well involuted, the scar was well healed, and the patient was well adapted and comfortable.

SUMMARY

1. A brief orientation of the subject, indicating approximately thirteen to eighteen thousand female persons in the United States with patent ductus arteriosus, and the current recommendation that this vessel be ligated prior to the age of ten years, establishes the importance of clinical consideration of the defect.

2. The inevitable and incidental loads of pregnancy are evaluated as accurately as possible from the cardiac standpoint.

3. A few suggested points of obstetrical management are presented, adding to the already established procedures only a somewhat more thorough cardiac evaluation aimed at estimating and detecting the fall in cardiac reserve.

4. A rather optomistic maternal prognosis is apparently warranted.

5. A report of one such case is presented.

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THE HUMPED NOSE

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Phoenix, Arizona

OF all the types of external nasal deformities the humped nose has the highest incidence. It is also the type that lends itself to reconstructive surgical correction with relative ease, offers gratifying and frequently dramatic results and has an operative and convalescent period which is extremely short. As the knowledge of the excellent results and minor inconvenience has become more widely disseminated, both among the profession and the laity, the corrective procedures have become progressively more popular.

Characteristics

The humped nose may be congenital or traumatic. The congenital type presents a marked forward prolongation of the nasal septum, both nasal bones and the upper lateral cartilages. The traumatic humped nose has a more angular hump which is usually confined to the bony ridge. Associated deformities contributing to make up the typical humped nose are the drooped tip with downward projection of its alar cartilages. There may be many variations such as fleshy bulbous tips, hanging or retracted

columellas, flaring nostrils and others. Trauma to the humped nose, either by direct blow resulting in a dislocated anterior septum or by an overenthusiastic submucous resection, will frequently give rise to the "beak" profile due to the lack of tip support.

Surgical Indications

The main indications are cosmetic or impairment of function. The latter occurs more frequently than many suspect. Proetz's[1] experiments revealed the importance of the shape and position of the nostril in determining the stream



Fig. 1A

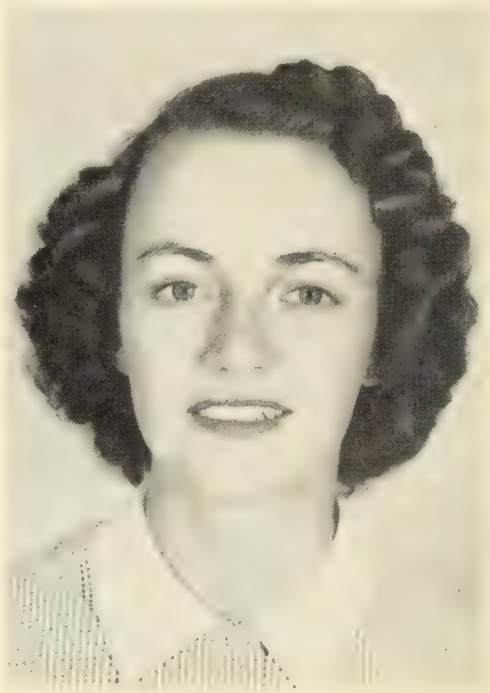


Fig. 1B



Fig. 1C



Fig. 1D

Fig. 1. Typical humped nose deformity (A and C) with correction (B and D). Note the accentuation of the drooped tip upon broad smiling.

of inspired air currents. The humped nose with its characteristic deformity of the anterior septum and its drooped tip has an altered route of the inspiratory current of air with eddies and whorls being produced in the nasal passages. Consequently, many of these patients complain of nasal stuffiness, frequent colds, dryness and an irritating postnasal discharge. This was first brought to the author's attention by a patient relating that he had discovered that he could

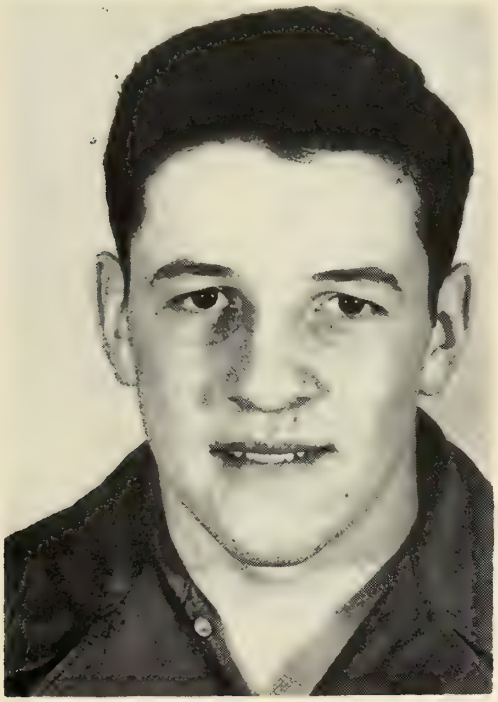


Fig. 2A

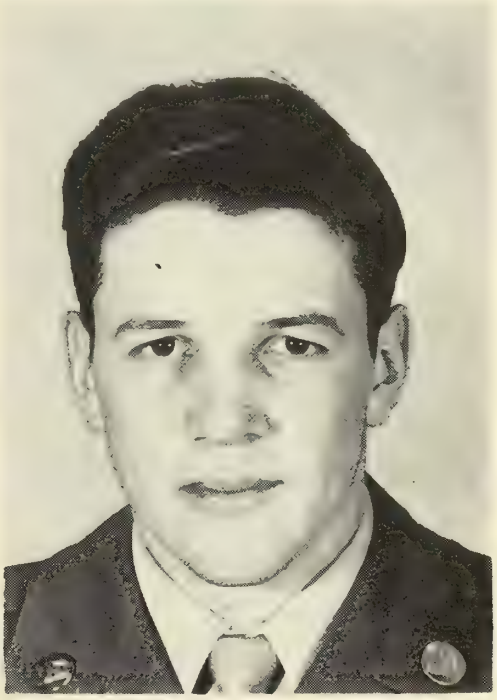


Fig. 2B

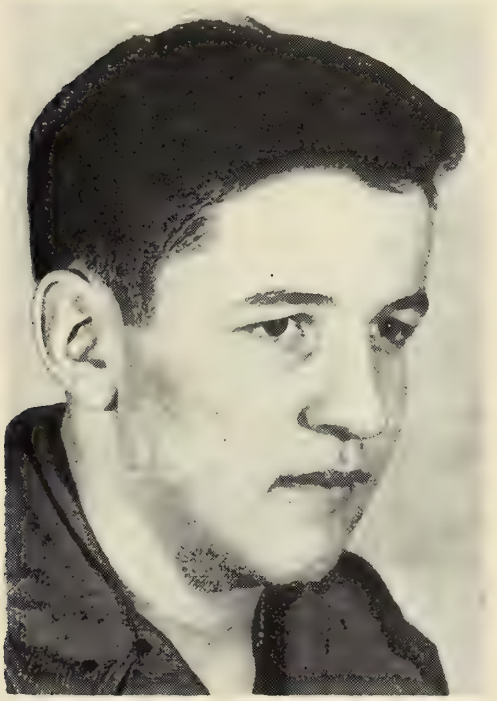


Fig. 2C

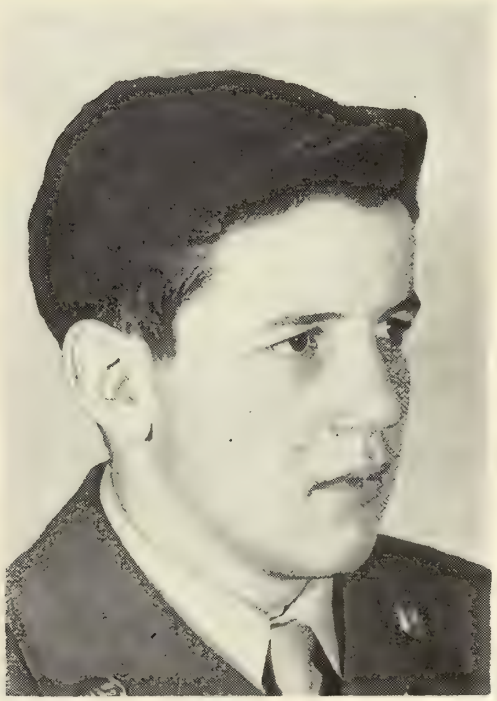


Fig. 2D

Fig. 2. Slight hump with associated deformities of bulbous tip and bony twist giving a "tough" appearance (A and C). Rhinoplastic reconstruction consisting of removal of hump, putting nose back into the midline and remodeling the nasal tip gave this patient the desired clean-cut appearance.



Fig. 3A



Fig. 3B

Fig. 3. Presenting complaint was that of appearing much older than she actually was (A). Removal of the slight hump, softening the sharpness of the nasal tip and relaxation of the nasolabial angle produced desired result (B).

breathe freely all night by simply using adhesive tape as a sling and keeping the tip of his nose elevated. Unfortunately, he had had a submucous resection and frequent turbinate cauterizations with no relief. Thus, the patient not only made his own diagnosis but presented the fact that elevation of his nasal tip was the procedure necessary to obtain relief. It is surprising how frequently this condition will be encountered if one uses the simple test of elevating the tip of the nose with the index finger to determine whether the patient experiences easier breathing. If he does, he can safely be told that the rhinoplastic procedure will offer him the same amount of functional improvement in addition to improving the appearance of his nose.

The rhinologist is most frequently consulted by the patient with the humped nose seeking corrective measures for purely cosmetic reasons. This type of patient should not be regarded with lack of understanding as the indications may be very important from the standpoint of the patient's happiness and welfare. One must realize that facial appeal is the dominant factor in our daily social contact. The nose is the most conspicuous feature of the face, and any exaggeration such as the humped nose may well render it as a subject for ridicule and abuse, and of equal importance, may give rise to various, more or less severe complexes of inferiority, inadequacy and self-consciousness. One must attempt to understand the patient's mental attitude. A large humped nose on a small face becomes an absurdity, yet the size of the deformity bears little relationship to the patient's unhappiness. In addition, facial appearance is a definite factor in one's economic and social status. The average patient with average capabilities can be helped to a happier, better adjusted life, providing the person feels it will help. The proper object for surgery is a deformity which can be corrected in a patient with a serious desire to have the correction.

Planning the Rhinoplasty

No two noses are alike and no two faces are alike. Consequently, one cannot resort to a stereotyped procedure or else the results will reflect the lack of judgment and planning. The nose must be in harmony with the remaining features of the face. There are certain rules of symmetry which tend to yield a pleasing, esthetic result. The entire face must be studied from

various angles and this is best done by means of photographs and face masks. The correction will vary according to the other features of the face in addition to the nasal deformity. One must consider such things as a prominent or a receded chin, a long upper lip, a short upper lip which folds upon itself when the patient laughs, a round face or a long face. If the proper studies and plans are made preoperatively, the results will be most gratifying in that pleasing, esthetic improvements will be achieved consistently. One must proceed with caution in the type of patient who insists on having his humped nose reconstructed to a tiny "turned up" nose, in spite of it not being the best esthetic aim. This desire may have become so strong in the patient's mind that to do otherwise would displease the patient, thus defeating the main objective of the surgery in spite of having obtained a good surgical and artistic result.

The Actual Rhinoplasty

The details of the actual operative procedure have been described repeatedly in the literature. At present, the operation consists essentially of the technique described by Joseph[2], with refinements by such men as Aufricht, Fomon, Safian and others. The surgery usually takes about one hour operating time and is done preferably under local anesthesia. It may be well at this time to emphasize that the humped nose requires a complete osteoplastic reconstruction. Many patients consult the surgeon with the desire of simply having the dorsal hump removed. Little do they realize if the hump were removed and nothing else done, the surgeon would simply be substituting one ugly deformity for another. When the hump is removed the result is a wide appearing, flat topped nose. Thus the lateral walls must be brought together by infracturing. This, in turn, causes asymmetry of the tip, or lobule. It is now too broad for the rest of the nose. Consequently, the most delicate part of the rhinoplasty must now be done. The alar cartilages, which constitute the framework of the nasal tip, must be reduced in size and refashioned according to the desired result of a remodeled nasal tip. As a result,. the nose will be symmetrical in itself and not have any artificial "give away" appearance.

The postoperative convalescent period is short and surprisingly lacking in discomfort. Absolute bed rest is limited to the first 24 hours. The patient wears a stent supported dressing for about



Fig. 4A



Fig. 4B

Fig. 4. Typical humped nose accentuating the prominent mouth and receded chin (A). Correction (B) removes the emphasis of the associated deformities. Note the fine highlights of the remodeled tip which is so important in giving a "natural" appearance.

five days. All intranasal sutures are removed by the fourth or fifth day and all dressings are discarded by the eighth postoperative day. The patient continues to be amazed that there are no incisions or stitches, and he will be sure to comment on how comfortable he has been. Most

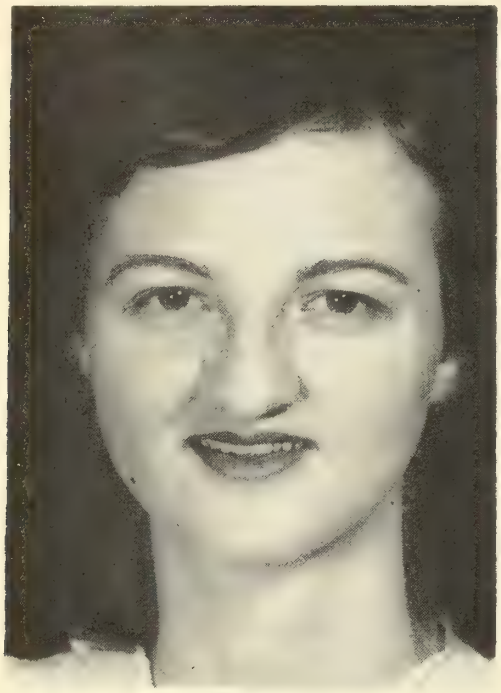


Fig. 5A

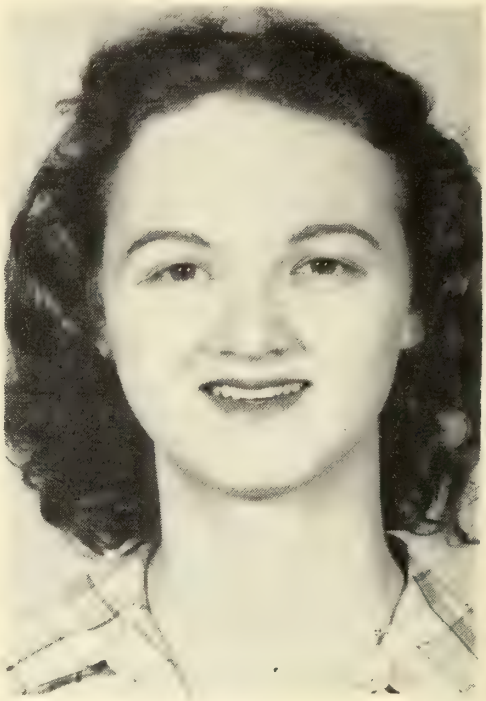


Fig. 5B



Fig. 5C

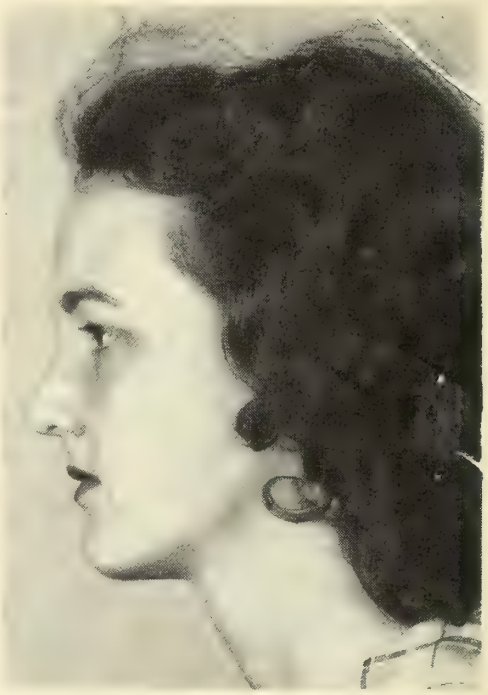


Fig. 5D

Fig. 5. Preoperative photographic analysis (A and C) reveals marked asymmetry of facial features. The nose is much too large for the face. The nasal tip is very bulbous and droops considerably, accentuated by the dorsal hump. The mouth is small with an upper lip which is too short. Correction (B and D) attained by an over-all reduction in size of the nose, elevation of the nasal tip and lengthening of the upper lip. The associated symptom of chronic nasal stuffiness was relieved.

patients are ready to return to their full activities ten days after surgery.

SUMMARY

The humped nose deformity differs from other deformities not only because of its great frequency but also because it lends itself to corrective surgery with such relative ease.

Nasal osteoplasty is indicated when the deformity causes impairment of nasal function, and more commonly, when the deformity creates unhappiness and complexes of various degrees. One must realize that surgery for esthetics alone can well be consistent with the highest purposes and goals of modern surgery. If the rhinoplasty is well planned and exercised, the results can be gratifying to both the patient and the surgeon. Persons who have had corrective surgery for a humped nose are among our happiest patients.

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Editorials

Can Arizona Afford a Four-Year Medical School?

In family circles decisions regarding expenditures for necessities and luxuries are usually made after consideration of the family income, other necessary expenditures, and requirements for savings. At one time, nominally at least, similar criteria were applied to expenditures by governmental and other organizations receiving and disbursing money. The "queer" deal, however, has changed all this and it seems no longer fashionable to consider spending in the light of realities or responsibilities. Government has been chiefly influenced by its social adventures here and abroad thus resulting in our present astronomical public debt. It is not surprising that with this example, similar uncontrolled spending is spreading throughout our social structure. As a result, our private per capita debt is the highest in history.

Without belaboring the point it certainly is an obligation of the profession to set an example of common sense in spending, both public and private, and to avoid the pork barrel even when no personal profit is involved.

Recently there has been some agitation for the establishment of a four-year medical school in Arizona. A number of reasons have been advanced for such a project, however, the only acceptable reason can be that there are insufficient physicians available to meet the health needs of the State. Such is certainly not the case now, and, climatic and other factors being what they are, the State will probably always get more than her share. U. C. L. A. at Los Angeles is now in the process of setting up such a school, and, when one reviews the problems and tremendous budget involved in that undertaking in the light of the situation here in Arizona, where adequate and balanced clinical facilities suitable for a teaching program are nonexistent, it would seem that a four-year medical school would prove a most expensive luxury.

New Hope for Free Medicine

The recent elections in New Zealand and in Australia ousting the Socialist government of these countries, which had held power for 14 and eight years respectively, comes as an unexpected and cheering bit of news. The tide toward socialism in English speaking nations began in these countries, engulfing England and making further advances in the United States

after World War II. The way in which New Zealand and Australia have been able to throw off the shackles which have bound them so long, gives us new hope that, in spite of the enormous advantages for self-perpetuation possessed by the party in power, that we will also see socialism soundly repudiated in Great Britain and win our fight in this country for free enterprise and free medicine. At least the people in Australia and New Zealand know what they are voting for. In this country the "Trumanite-Socialists" have accomplished the amazing sleight of hand of clothing themselves in the name of the old and honorable democratic party. Shakespeare once said "would a rose by any other name smell as sweet." How much better it would be if in our elections we had the choice of voting for a Socialist or a Free Enterprise ticket instead of Democrat or Republican.

Arizona Medical Problems

CONSULTATION AND CASE ANALYSIS

ARIZONA MEDICINE again presents an unsolved and difficult case from the practice of Arizona physicians, with the Case-Analysis and comments of a specially-chosen and nationally-known Consultant.

Any physician who has an undiagnosed case which has defied other methods of solution may send it for consideration. The case should be completely worked up, but an editor will help compose the report. Whenever the need for an answer is urgent, the Consultant's reply will be sent direct to the submitting physician, before publication.

Please send communications and data to Dr. W. H. Oatway, Jr., 123 S. Stone Avenue, Tucson, Arizona, or care of The Editor, Arizona Medicine.

The current case is one with an *acute ocular lesion*, but with an involved background to which it may be related. It will be interesting to see what the modern viewpoint is, and whether the ultra-modern drugs are of value.

The CONSULTANT is *Dr. Alfred R. Robbins* of Los Angeles. Dr. Robbins is a graduate of Purdue University, of the School of Medicine at the University of Indiana, and the Post-Graduate School at the University of Pennsylvania. He became a diplomate of the American Board of Ophthalmology in 1937, and is a member of the American College of Surgeons. His practice has been limited to ophthalmology since 1933. Dr. Robbins' experience in urban Los Angeles, in a large medical center where he sees many problems in consultation, is an ideal vantage point from which to analyze a case of this sort.

* * *

CASE NUMBER XXIV

The patient was **a white male student, 21 years of age.** He was a native of Arizona, and had lived most of his life in Phoenix.

The **chief complaint** was a burning pain in the left eye, with photophobia. The symptoms had started two days before, but had been minimized because he had been straining his eyes by overwork for many weeks.

The **past medical history** seems pertinent, and contains several evidences of ill health. Five years before, at the age of 16, the patient had developed an aching pain in the hips while going to school near Boston. The hips were x-rayed and found to be negative.

Two years later he had an attack of severe pain in the lower part of the back, and a Tucson orthopedic surgeon diagnosed a **spinal and sacro-iliac arthritis** by x-ray. A noted Boston consultant called it the "third type of arthritis," the "glandular" kind, prescribed female sex hormones (ineffective), x-ray therapy (helpful), exercises (abandoned), and vitamines.

The pain had been present since, being worse with exercise, better in the summer, and often referred bilaterally to the epigastrium. He felt better while living in southern Arizona. No other joints were involved, but the strength in his legs had been poor, his weight was always below normal.

He had been thoroughly examined a year before his present eye symptoms. His spine contour and mobility were normal, and there was no tenderness, but he was unable to bend at the hips while standing or recumbent. The sinuses, throat, heart, prostate, and abdomen were normal. X-rays of the spine and pelvis showed an ankylosing lesion of the sacro-iliac joints. The prostate smear was normal, as was the blood serology. The blood count was normal, but the sedimentation rate was 38 mm. in an hour. The chest x-ray showed calcifications in the hilar areas, a tenting of the left diaphragm, and a subapical pleuroparenchymal scar.

On examination at the time he was seen for his eye symptoms his general condition was good; his arthritis, with pain and morning stiffness, was the same; he had no symptoms by sys-

tems. There were shotty cervical lymph nodes; the lungs were unchanged by fluoroscopy; his sinuses were clear by x-ray; the prostate was finely nodular and of normal size; the teeth were normal by x-ray; the blood count was normal and the sed. rate was 45 mm.; and the eye condition was referred to an ophthalmologist.

The specialist diagnosed an **irido-cyclitis,** used atropine drops, hot packs, and gave a hypodermic of foreign protein. Relief of pain was immediate, but in a few days the exudate became plastic. The temperature was close to normal.

The use of penicillin, sulfamerazine, and fever therapy was discussed.

* * *

QUESTIONS:—

1. What is the etiology of a spontaneous iridocyclitis?
   Is it related to the arthritis, as is often suggested?
2. Should it be treated as an infection?
   What chemical or antibiotic is the method of choice at present?
3. Is there any evidence to show a connection with adrenal function?
4. Is fever therapy or physiotherapy of value?

M. D., Tucson

* * *

ANALYSIS AND ANSWERS:—

A review of the case number XXIV gives the following positive findings:—

1. An ankylosing lesion of the sacroiliac joints.
2. An elevated sedimentation rate.
3. Chest plates which indicate some degree of pathology without positive findings of active tuberculosis.
4. An acute iridocyclitis in the left eye with plastic exudate.

Question No. 1.—*What is the etiology of a spontaneous iridocyclitis? Is it related to the arthritis, as is often suggested?*

The etiology of iridocyclitis is usually obscure and is rarely primary except in injuries, surgery, or infestations. In most cases the organism cannot be recovered from the eye. The reaction of inflammation in an eye therefore is usually regarded as a local special tissue hypersensitivity to an organism or its toxins.

A careful survey must be done in all cases of this type, and it must include the granulomatous diseases, tuberculosis, Fryes organism, Brucellosis, Histoplasmosis, Toxoplasmosis, Coccidioidomycosis, as well as infection by the Neisserian organism, the streptococcus, the staphlococcus, and E. coli.

A reasonably accurate survey of this type can be made in a well equipped laboratory. In this way one often can determine the probable etiologic factor.

From the history in this case I would consider the granulomatous types of infection first.

The iridocyclitis may be related to arthritis and the reported incidence is high. The relationship is that of related signs of a systemic disease.

Question No. 2.—*Should it be treated as an infection? What chemical or antibiotic is the method of choice at present?*

It should be treated as an infection until any demonstrated foci are eliminated. However, the treatment often is desensitizing rather than more drastic therapy, especially in the chronic stage.

Antibiotics and chemicals would be used against a primary infection, but have very little influence on the iridocyclitis itself.

Question No. 3.—*Is there any evidence to show a connection with adrenal function?*

At present a few cases have been reported in which, during the treatment of arthritis with compound E (or ACTH), uveitis has shown a dramatic response. This indicates that the etiologic factor is the same. The present state of our knowledge in this work is purely empirical.

Question No. 4.—*Is fever therapy or physiotherapy of value?*

This patient has an active iridocyclitis with exudate. The systemic findings are those of a chronic infection with increased sedimentation rate. The immediate treatment of choice is repeated general hyperpyrexia with accepted local therapy to the eye.

ALFRED R. ROBBINS, M. D.,
The Wilshire Medical Building,
1930 Wilshire Boulevard,
Los Angeles, 5, California.

PHOENIX CLINICAL CLUB

Massachusetts General Hospital

Case Record 30051

November 28, 1949

An eighteen-year-old youth entered the hospital because of high blood pressure.

The patient was in excellent health until about seven months before admission, at which time he noticed the onset of occasional headaches. He had cold feet and legs at night, accompanied by hot flashes over the upper half of the body. Three months prior to entry he developed persistent nocturia, twice a night. There were one or two short episodes of dysuria, but no polyuria, pyuria, hematuria or incontinence. For years he had drunk two quarts of water daily. He had no increased thirst. About one month before admission he developed a sharp, occipital pain, which was accompanied by a dull ache over his eyes and over the bridge of his nose. At first the pain came on in the morning on waking, was relieved by work and returned in the afternoon or evening. Lately it had become persistent and prevented him from sleeping. About three weeks before admission, while being examined for a job, he was told that he had high blood pressure. The headaches became quite severe. Two days before admission he woke with a right facial paralysis. He had a slight nosebleed and palpitation, with slight non-radiating precordial pain, blurring of vision and mental confusion. He was unable to recognize his father. He had no vertigo, convulsion, unconsciousness, nausea, vomiting, fever, chills or anginal pains. He had lost 13 pounds of weight in two years.

The past history was entirely negative except for diphtheria as a child.

Physical examination showed a well-developed, well-nourished man in no distress. The lungs were clear. The left border of cardiac dullness was 8 cm. from the midsternal line in the fifth space. The sounds were forceful, regular, and of good quality. A loud third sound and a split second sound were heard at the base. The aortic second sound was greater than the pulmonic. There was complete right facial paralysis. No spasm, anesthesia or paresthesia was noted. The fundi showed rather marked generalized spasm. The disk margins were blurred, but there were no elevations; a few collections of cotton-wool exudate were seen, as well as two or three small bits of waxy exudate, in the left macula. Neurologic examination was otherwise negative except for bilaterally decreased tendon reflexes.

The blood pressure was 190 systolic, 140 diastolic. The temperature was 98.6°F., the pulse 80, and the respirations 20.

Examination of the blood showed a red-cell count of 5,700,000, with 14.5 gm. of hemoglobin. The white-cell count was 14,500, with 66 per cent neutrophils. The urine showed a specific gravity of 1.020. There were three or four red cells and one negative. The stools were guaiac negative. A blood Hinton test was negative. The non-protein nitrogen was 28 mg. per 100 c.c.

X-ray examination of the chest showed slight enlargement of the left ventricle. An intravenous pyelogram was negative. A urine concentration test showed a specific gravity of 1.022. A phenolsulphonephthalein test revealed 40 per cent excretion in the first fifteen minutes, and 85 per cent in two hours. A lumbar puncture gave an initial pressure of 120 mm. of water; 10 c.c. of clear colorless fluid was withdrawn, with a final pressure of 80 mm. There were 3 white cells per cubic millimeter, with a total protein of 82 mg. per 100 c.c. The gold-sol test was 0011331000. Repeated blood-pressure determinations gave an average of 200 systolic, 140 diastolic, while lying down and sitting, and one of 150 systolic, 130 diastolic, while standing. The entire determination, however, was done in a single sitting over a period of only twenty-four minutes. A cold pressor test showed a systolic rise of 10 mm. and a diastolic rise of 10 mm. Blood-pressure determination after the administration of three doses of 3 gr. of sodium amytal within a period of three hours showed no definite change. An electrocardiogram revealed a normal rate of 85. The PR interval was 0.12 second; S_2 and S_3 were prominent; ST_2 and ST_3 were depressed, with increased T_2 and T_3.

The patient's condition remained essentially the same. There was a slow rise of blood pressure. On the sixth hospital day he developed a sore throat, with chilly sensations and increased sweating. The temperature rose to 102°F. Examination showed a beefy-red throat and bilaterally tender and enlarged posterior cervical lymph nodes. The white-cell count was 13,800 with 78 per cent neutrophils. A throat culture showed many beta-hemolytic streptococci. On the sixteenth hospital day he was given 2 gm. of sulfadiazine every two hours for two doses, followed by 1 gm. every four hours for six days. The throat culture became negative.

On the twenty-first hospital day he complained of discomfort in the right flank. There was some tenderness in the right costovertebral angle. The urine examination showed a specific gravity of 1.010 and a + test for albumin. The urine contained innumerable red cells, with occasional white cells and granular casts, which

persisted for five days. A urine culture was negative. The temperature, pulse and respirations were normal. The blood pressure was 220 systolic, 165 diastolic.

An operation was performed on the twenty-sixth hospital day.

DISCUSSION

Dr. Preston T. Brown:

The positive features of the illness of this 18-year-old male are:

1. Marked hypertension.
2. Vaso-motor phenomena — cold extreme, hot flashes.
3. Headache.
4. Facial paralysis — complete.

While in the hospital he developed a severe strep throat infection followed by evidence of renal injury.

The examination and laboratory studies provide ample evidence that no organic cardiac disease exists and that the hypertension is not based upon Bright's Disease—witness the good urinary concentration, normal NPN and PSP secretion.

Unless one is willing to accept a diagnosis of essential hypertension (a vague and unsatisfactory term) we must consider the outstanding possibility to be an adrenal medullary tumor, the type called pheochromocytonia. These relatively rare tumors of the chromaffin sympathetic nerve tissue usually produce epinephrine or epinephrine-like substances. These tumors may be discovered accidentally at surgery or autopsy in a symptom-free person, they may cause sudden death following minor trauma or surgery or they may produce the adrenal sympathetic syndrome. The latter may be manifested by paroxysmal hypertension alternating with normal blood pressure or a continuous hypertension with paroxysms. And finally, it may simulate the continuous hypertension of essential or malignant hypertension. Hyperglycemia is a frequent finding in the paroxysmal attack—not tested in our patient, glucose tolerance is low, and BMR is elevated.

The use of epinephrine antagonists is of value in differential diagnosis — drugs of the benzodioxane group produce significant drops in blood pressure in the presence of this type of tumor. On the other hand, histamine and mechotyl by their epinephrine provoking action precipitate paroxysms in these patients. The tumor may often be visualized by soft tissue x-ray technics, pyelograms, or by air insufflation in the para-renal connective tissue.

In our patient several features appear to be irrelevant to the basic diagnosis. The facial paralysis, for example is described as "complete," and if that is accepted it must be assumed to be a peripheral involvement typical of Bell's palsy and due to a central lesion such as hemorrhage in the supranuclear region in which the upper portion of the face would be relatively less affected.

The strep throat treated after a delay of ten days with sulfa drugs is an incident, and either by itself or associated with sulfa irritation of the urinary tract produced the hematuria.

In the differential diagnosis psychoneurosis with hypertension may be confusing, and several cases have been explored for tumor. The use of benzodioxane produces no lowering of blood pressure in such cases, and sedation often may do so.

In our patient we have only the history to support the diagnosis of pheochromocytoma plus the absence of evidence pointing to any other cause of hypertension. It would be helpful to know the response of the patient to benzodioxanes and histamine.

The negative pyelogram is a stumbling block but we haven't seen the pictures.

Diagnosis: Pheochromocytoma
Bell's Palsy
Strep throat

Operation: Expl. of adrenals.

Dr. Joseph Bank:—

It is an unpleasant truth that patients with known or suspected causes for their hypertension constitute only a small percentage of those suffering from arterial hypertension. At least 95 per cent of them have the essential or malignant variety. Because hope springs eternal in the human breast, we always search for the occasional case in which a cause may be found, and if we hit the jackpot, remove the cause. This gamble against nature's slot machine of human pathology is most alluring and leads to fascinating research with an occasional reward, as in the exceptional case of hypertension.

In beginning our search for the rare nugget of curable hypertension, we have to sift through a long list of possibilities. We have renal causes, cerebral causes, cardiovascular causes, and endocrine, not to mention the most common and

most unknown, namely, essential and malignant hypertension.

Among the renal causes we have affections of the vessels, arteriosclerosis, vascular anomalies, and popular guesses in which only the pathologist can be certain, namely, periarteritis nodosa, visceral lupus erythematosus, and scleroderma. The various affections of the parenchyma need not be enumerated. They are both medical and surgical. Perinephritic disease and involvement of the ureter are also contributing causes. The most common cerebral causes are those producing increased intracranial pressure, diencephalic stimulation, and anxiety states. Cardiovascular conditions include heart failure, arteriovenous fistula, heart block, coarctation, atheromatosis, and polycythemia.

An elevation of blood pressure during adolescence gives rise to the suspicion of the presence of coarctation of the aorta. This probability is increased by the absence of renal pathology. The alteration in circulation due to interference of the blood supply results in considerable hypertension in the arms. The blood pressure in the legs is low, a systolic murmur is heard over the base of the heart; fluoroscopy reveals a moderate enlargement of the left ventricle, the aortic knob is not prominent, and erosion of the lower borders of the ribs may be seen being produced by the dilatation of intercostal arteries. The complications of coarctation include the development of subacute bacterial endocarditis, subarachnoid hemorrhage, rupture of the ascending aorta, cardiac insufficiency, or intermittent claudication. The record before us does not have enough evidence to direct our attention to coarctation.

The mechanism of the malignant hypertension syndrome is not clear. In dogs Goldblatt and Keyes have produced a syndrome resembling it by constricting the renal arteries severely. The changes observed at autopsy are particularly noted in the vascular system, consisting of severe arteriosclerosis, necrosis with fibrinoid degeneration especially of the renal arterioles, and an endarteritis of small renal arteries. Most patients with the malignant syndrome have had a prolonged period of essential hypertension, coming on without warning and striking the patient suddenly. But there is also a group of cases in which there was no preceding hypertension, with the malignant symptoms present from the first with a course that runs in weeks or months. The syndrome occurs in early or middle life. The early signs include severe headache, some dyspnea, fatigue, weakness and weight loss, and above all, blurred vision. Most observers do not believe that malignant hypertension can be present without papilledema. While elevated pressure of the cerebrospinal fluid is associated with papilledema, it is not the only cause. Dyspnea, ankle edema with change in the T-wave and left axis deviation in the E.C.G. are noted. With the terminal stage, cardiac failure becomes intensified, the heart being dilated rather than hypertrophied. Nausea, vomiting and severe weight loss and convulsions follow. Death occurs from uremia, cardiac failure, or occasionally from cerebral hemorrhage.

Pituitary basophilism may be associated with hypertension. It occurs in adolescence or early adult life. The onset is insidious. The early complaints are weakness, increase in weight, impotence in the male, amenorrhea in the female. Later there develop asthenia, headaches, and dimness of vision.

Many patients experience increased thirst with polyuria and nocturia. Mental changes or psychoses may be present. The general appearance of the patient is sufficiently characteristic to suggest a Cushing syndrome.

Adrenal cortical tumors are associated with high urinary values for androgen or seventeen ketosteroids, which is low in Cushing's syndrome without adrenal tumor.

Several tests were performed in this patient which are supposed to have some diagnostic value in hypertensive patients. The cold pressor test showed a systolic and diastolic rise of only 10 mm. which is negative. That is, the reaction is within normal limits and supposedly does not classify this patient as hypertensive or potential hypertensive. The sodium amytal test is used in the selection of patients for sympathectomy and is far from infallible. It consists of giving three grains of sodium amytal every hour for three hours, and the blood pressure is measured during this period. If the diastolic pressure decreases to less than 110, good or fair results are more likely than when it does not fall below 120.

The urine studies exclude chronic glomerular nephritis as a possible cause of hypertension.

Pheochromocytoma is a tumor formerly diagnosed almost exclusively at autopsy but is now subject to accurate clinical diagnosis, particu-

larly with piperidylmethyl benzodioxane (933F). Hypertension caused by a pheochromocytoma represents the only type that may be considered as curable.

The true incidence of this tumor is not reflected by the small number of cases reported in the literature (about 175 to date). A total of five cases was located by routine examination of the adrenals in a series of 1,000 hypertensive patients undergoing sympathectomy (Smithwick, cited by Goldenburg, Snyder and Aranow, J.A.M.A. 135:971, Dec. 13, 1947), indicating that pheochromocytomas may account for about 0.5 per cent of the hypertension in the nation.

The tumor occurs in children as well as in adults of all ages, but it is most common between the ages of 20 and 40. Females are perhaps more commonly affected.

Epinephrine-producing tumors may occur anywhere in the chromaffin system except the carotid body: (1) Adrenal medulla (10 per cent bilaterally), (2) Abdominal paraganglia, (3) Organ of Zuckerkandl, (4) Thoracic parganglia.

The tumor is usually benign (10 per cent are malignant). The size may vary from 1 to 12 cm. or more in diameter. Multiple tumors are common. Tumor cells stain with a characteristic affinity for chromic acid, manifested by a brown color with bichromate stains.

The clinical findings may follow one of two patterns:

The classical course includes intermittent attacks varying in frequency and duration but characterized by paroxysmal hypertension associated with: pounding headache sometimes associated with hyperglycemia or glycosuria occurring spontaneously or precipitated by unusual pressure from changes in body position, palpitation, tremor, hyperhidrosis, convulsions, and collapse. The atypical course may frequently be associated with sustained hypertension rather than paroxysmal hypertension. Such cases resemble clinically other forms of sustained hypertension. They occur most often, later in course of undiagnosed cases in children, and are associated with: elevated basal metabolic rate and characteristic retinal changes (in children).

The diagnosis is based upon a high index of suspicion, reproduction of an attack, and termination of an attack by pharmacologic means. Reproduction of an attack may be brought about by mechanical means; (flank massage), or pharmacologic means. The latter is accomplished by stimulation of epinephrine release, with resultant increase in hypertension, by means of drugs that depress blood pressure in absence of pheochromocytoma, namely: (a) histamine base (Dose: 0.05 mg. intravenously), (b) tetra-ethyl amonium chloride (Dose: 400 mg. intravenously), (c) mecholyl (Dose: 25 mg. subcutaneously).

Disadvantages of percipitating a hypertensive crisis characteristic of earlier tests for the pheochromocytoma may be overcome by using one of the benzodioxane derivatives. In the presence of excessive amounts of circulating epinephrine, a brief but dramatic drop in blood pressure results from the injection of the test dose. When hypertension is not associated with a pheochromocytoma, the blood pressure either remains constant or increases moderately.

This drug is of foremost value in patients with sustained hypertension in whom the use of epinephrine-releasing drugs might be dangerous. It provides an effective, simple, harmless means of detecting the pheochromocytoma in the routine study of all sustained hypertensives. (Piperidylmethyl benzodioxane [933F]. Dose: 10 mg. per square meter of body surface intravenously).

The tumor may be localized with the aid of x-rays, either without special technic or better with perirenal insufflation and laminography.

The treatment of pheochromocytoma is surgical removal. Incision is made in the flank, if site of tumor has been determined. Laparotomy is done if exploration of chromaffin system is required. Hypertensive crises during surgery may be prevented by cautious, gentle manipulation of tissues, inhalation of amyl nitrite, and intravenous injection of piperidylmethyl benzodioxane.

Postoperative shock may be avoided by preoperative administration of whole blood, blood plasma, adrenal cortical extract; general anesthesia (i.e., spinal anesthesia to be avoided); postoperative administration of epinephrine-in-oil; synthetic sympathomimetic drugs; adrenal cortical extract.

Diagnosis: Pheochromocytoma.

DIFFERENTIAL DIAGNOSIS

Dr. Harry A. Derow*: We are dealing with an eighteen-year-old boy with severe progressive arterial hypertension and without any history of antecedent renal or hypertensive disease. The onset of this condition apparently dated from about seven months prior to admission to this hospital. Because of the high diastolic pressure and the retinal picture of papilledema, cotton-

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wool spots and diffuse arteriolar spasm, we have to make a diagnosis of malignant hypertension. By making this diagnosis we are not referring to any specific pathologic process in the kidneys: that is, the term "malignant hypertension" is used as a clinical diagnosis.

Back in 1935, Dr. Mark Altschule and I pointed out that malignant hypertension is a syndrome that may occur with no evidence of existing hypertension, as the end stage of primary (essential) hypertension or as the end stage of a miscellaneous group of conditions characterized by secondary hypertension. We also pointed out that during the life of the patient exhibiting the syndrome of malignant hypertension, it is usually difficult if not impossible to determine the nature of the underlying pathologic process, that the prognosis by and large of these patients is extremely poor and that the cases that offer some modicum of hope are those rare surgically amenable cases in which the syndrome has been precipitated by renal infarction or by the development of certain tumors of the adrenal gland (pheochromocytomas). Also, there are cases of malignant hypertension that despite the poor prognosis, develop spontaneous remissions, during which the fundi show amazing improvement. The blood pressure, however, remains the same and these patients may go on for a period of years only to succumb to the same rapidly progressive picture ture that they originally presented.

In this patient, what evidence do we have to indicate antecedent primary inflammatory renal disease? I should like to ask about the urine examinations. The number of examinations done is not given; also the presence or absence of albumin is not stated.

Dr. Benjamin Castleman: A + and a + + test were recorded in three out of nine examinations.

Dr. Derow: The fact that six of the nine urine specimens that were examined failed to show albumin makes me believe that we are probably not dealing with primary inflammatory renal disease upon which malignant hypertension has been superimposed. I am unable to interpret the history of one or two short episodes of dysuria three months before entry, particularly since there was no pyuria, hematuria or incontinence. On the other hand, it is possible for patients with chronic inflammatory renal disease causing albuminuria to go along for many years without symptoms of any kind, with intact kidney function and with normal blood pressure, only to develop suddenly the picture that this patient presented. The normal intravenous pyelogram probably rules out polycystic kidneys or other congenital anomalies of the upper urinary tract. The possibility of an adrenal tumor cannot be eliminated by the finding of a normal pyelogram, and that of course is a possibility here. There is no mention made of scalloping of the ribs or of the blood pressure values of the legs, so I think that we can probably eliminate coarctation of the aorta.

The possibility of a brain tumor is unlikely, because the patient presents the picture of scattered focal lesions in the cortex, midbrain, and pons, and it is difficult to visualize a brain tumor that would involve such dispersed areas. My explanation for the cerebral picture is that there were scattered necrotic vascular foci, which are often seen in patients with severe hypertension.

We are left with the diagnosis of the syndrome of malignant hypertension without any clear idea of the underlying renal lesion. There does not seem to be any impairment of renal or cardiac function, and the clinical picture is chiefly that of cerebral disease.

The clinical course of the patient is interesting. On the sixth day, he developed a streptococcal sore throat, and because of the persistence of a positive throat culture, he was given sulfadiazine. There is a question, of course, whether the throat culture would not have become negative in the course of time and whether sulfadiazine should have been given in the absence of active streptococcal infection. There is a difference of opinion on this matter. Not so long ago I had occasion to discuss with Dr. Maxwell Finland the matter of the administration of sulfadiazine to patients in the carrier state, and he is one who believes that sulfadiazine should not be given. The attending physicians probably wanted to eliminate the throat as a source of infection as quickly as possible prior to whatever operative procedure was going to be undertaken. During the course of the sulfadiazine therapy the patient developed discomfort in the right flank, tenderness in the right costovertebral angle, albuminuria, hematuria, pyuria and cylindruria. There is no mention made of the development of edema, nor of the urinary volume, during this period of what seems to be a

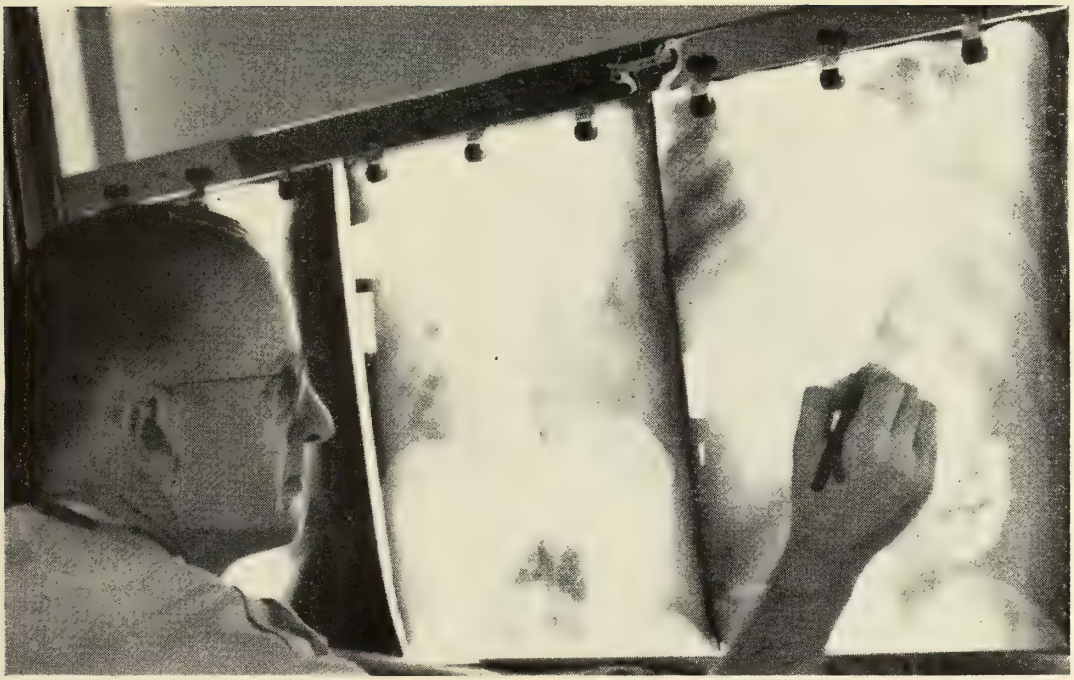
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RESEARCH IN THE SERVICE OF MEDICINE

renal complication following the administration of sulfadiazine. Is there any information in that regard?

Dr. Castleman: No.

Dr. Derow: The note does appear, however, that the diastolic pressure was elevated above the levels that were previously recorded. From the history and the findings we do not know whether this patient developed acute glomerulonephritis following the streptococcal sore throat occurring two weeks previously, without relation to the sulfadiazine ingestion. The possibility of infarction of the right kidney should also be considered, because such a condition does occur during the course of severe fulminating hypertension. Was the operation undertaken to relieve sulfadiazine kidneys? Was it on the other hand an operation to relieve the hypertension, which had been planned during the first week of the patient's stay but was delayed because of the sore throat?

Dr. Castleman: The operation was done for the hypertension.

Dr. Derow: The operation was, therefore, undertaken after the possibilities of sulfadiazine kidneys and glomerulonephritis had been eliminated. The method of dismissing those possibilities is not presented in the record. This patient presented the syndrome of malignant hypertension. He also presented the clinical picture of multiple cerebral thrombosis. He may have had sulfadiazine kidneys or acute glomerulonephritis. He may have had an adrenal medullary tumor—a pheochromocytoma.

Dr. J. H. Means: How essential to the diganosis of adrenal tumor is a definite history of paroxysmal hypertension, which he did not have?

Dr. Derow: I do not know. Most of the cases do give a history of acute paroxysms, with the blood pressure going up to much higher levels than the pre-existing hypertension.

Dr. Paul D. White: Would the age of eighteen influence you at all in making a diagnosis?

Dr. Derow: If the patient were a girl of that age I should lean in the direction of a congenital anomaly of one or both kidneys, but the fact that this patient was a boy of eighteen does not help in differentiating the possibilities I mentioned.

CLINICAL DIAGNOSIS

Essential hypertension.

DR. DEROW'S DIAGNOSIS

Syndrome of malignant hypertension.
Multiple cerebral thromboses.
Sulfadiazine kidneys?
Glomerulonephritis, acute?
Infarction of right kidney?
Tumor of adrenal medulla (pheochromocytoma)?

ANATOMICAL DIAGNOSIS

Pheochromocytoma of right adrenal gland.

PATHOLOGICAL DISCUSSION

Dr. Castleman: A right lumbodorsal sympathectomy was performed by Dr. Smithwick. During the course of the operation he found a tumor of the right adrenal gland. It was a well-circumscribed tumor measuring 3 cm. in diameter, which he was able to enucleate from the adrenal gland. A renal biopsy was also performed.

Microscopically the tumor is a pheochromocytoma—a tumor of the medulla,—but it is of an unusual type. The cells are arranged in a pattern somewhat reminiscent of a neuroblastoma. I suppose it is possible to have a tumor containing both these types of cells, since originally they arose from the same sympathetic primitive cell or sympathogonia.

Dr. Derow: Did you find acute hemorrhage in the tumor to explain the development of the symptoms that the patient had?

Dr. Castleman: No; just foci of necrosis that you may find in any activively growing tumor.

Dr. R. H. Smithwick: What did the renal biopsy show?

Dr. Castleman: A perfectly normal kidney, with no evidence of arteriolar disease.

This patient has been well and free from hypertension since his operation two years ago, a sympathectomy was not necessary on the other side. The cause of his hypertension, therefore, although it was not of the paroxysmal type, was the adrenal tumor.

Dr. Reginald H. Smithwick: This case is one of the few with pheochromocytoma without paroxysmal hypertension. I think it is well to stress that fact that this is an exremely rare condition. The great majority of reported cases with pheochromocytoma have had definite paroxysmal hypertension. So far as I know there are only one of two cases in the literature that in any way compare with this one; hence, it is difficult to make a diagnosis of pheochromocytoma in the absence of paroxysmal hypertension.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

POINTERS FROM A CHEST DISEASE SYMPOSIUM. — Dihydrostreptomycin is considered superior to streptomycin by most clinicians. (This is contrary to a V. A. decision) . . . Enteric-coated Sodium P.A.S. is not only better tolerated but produces as suitable blood levels as P.A.S. . . Primary atypical viral pneumonia is often a "walking" disease, has only a 1% mortality. . . . 100 mgm. of aureomycin by vein equals 1 gm. by mouth; it is soluble in glucose, not in saline. . . . The actual aim of tuberculo-therapy is for an ambulatory treatment. . . . New methods of therapy often complicate the program by introducing new ways of harming the patient. . . . Coccidioidin is now commercially available. . . There is no evidence so far that the streptomycin drugs harm the sensitive 8th nerve of the foetus in utero.

In relation to a comment in this column last year on the use of DARK GLASSES, Dr. Roger Peckham of Temple University agrees that any advertising which stresses the "elimination of harmful rays" by special glasses is meaningless. . . . Dark glasses, he says, are of use in cutting down the exposure of the retina to light rays. The darker the better, if they do not prevent one from seeing. After-effects of light-glare may include accidents while driving, accidents while doing machine work, etc.; the sensitivity of the eye to light at night may be cut 33 to 90%, and the visual acuity from 13 to 58%.

As a result of a new policy, and the location of their hospitals near teaching centers, the V. A. will offer 259 INTERNSHIPS in 13 of its hospitals in July, 1950.

The University of Kansas School of Medicine will include 11 weeks of training in RURAL MEDICINE in the curriculum of their senior year. The students will assist 39 practitioners in towns of less than 2,500 population. . . . This is similar to the University of Wisconsin PRECEPTOR SYSTEM, now 25 years old which requires that the student spend six weeks in one of a dozen clinics in the smaller cities of the state. . . . The contact is good for the student, and wonderful for the physician who gets a chance to teach, evangelize, and pump the student. . . . (We can't forget that the preceptor system was the prevailing system of medical education a hundred or so years ago).

The indolence of VARICOSE ULCERS has long been a trial (and error) to both physicians and patients. Antiseptics, local stimulants, venous occlusion, iontophoresis, sympathectomy, posture, etc., have been less than perfect methods of therapy. . . . Green and Klein, in the Michigan State Medical Journal, agree with others that allergy is a factor which joins with stasis to produce ulceration. . . . Most of their patients had a general allergy or a local intolerance to drugs. They report ten cases which responded to the use of an antihistaminic (pyribenzamine) in doses of 200 to 500 mg. daily by mouth, without other local therapy. . . . This would seem to be quite a small series, a possible adjunct treatment, and a place where more cases would be required.

Bronchoscopies, or perhaps only DIFFICULT BRONCHOSCOPIES, may be expedited by the use of PENTOTHAL-CURARE ANAESTHESIA to relax the neck muscles. . . . After the usual premedication with a barbiturate, and a cocaine preparation of the surface of the pharynx and larynx, curare (10 mg.) and then pentothal (0.5 gm.) are injected through a syringe attached to a saline venoclysis apparatus. Oxygen is kept at hand for an emergency. . . . Excellent results are obtained, since curare has its first action on the muscles of the head and neck—but it would seem wise to restrict use of the method to trained anaesthetists.

Acute CARBON MONOXIDE POISONING is not often a medical problem — unless the doctor is a coroner. It is a real hazard, though, in areas with a mild winter climate where heating largely depends on gas heaters. . . . The management of the hazard is pretty futile in most communities, and usually consists of a small fine after the unvented heater has caused an asphyxia. . In addition to the logical course (closer inspection and larger fines), it would be interesting to see what effect a few whopping big lawsuits would have on the attitude and conduct of landlords.

The Michigan Department of Health (near Detroit) has mentioned the CO hazard which is produced by the location of air intakes on some of the newer automobiles—often in direct line with the exhaust of a car just ahead.

The most recent HORMONE-ARTHRITIS note contains an Arizona angle. . . . The use of PREGNENOLONE has been reported by the Northern

California chapter of the Arthritis and Rheumatism Foundation as having been used at the Stanford University Hospital and the Army's Letterman General Hospital. DR. ROLAND DAVISON is chief of the arthritis clinic. . . . This is the same Dr. Davison who was the last medical director of the Desert Sanatorium (now the Tucson Medical Center), and who later practiced for three years in Tucson before going to Stanford. He was noted as the physician who successfully treated General Pershing for a serious renal ailment. . . . The report is full of caution, and the material is apparently one of the non-adrenal substances which have been occasionally found to have some effect.

This month's quotation from the Mayo Clinic Proceedings has to do with therapy of REGIONAL ENTERITIS. . . . Surgical resection has helped solve the problem, but only in part. Recurrences are common, and repeated resections may be needed. . . . Popp, Bargen, and Dixon have now used ROENTGEN THERAPY of the abdomen with considerable success. The results were very favorable in 20 of 43 cases, with symptoms largely eliminated and a return to work possible; fourteen of the others were improved. A high protein diet, supportive therapy, and courses of sulfathalidine were also used. . . . The only disadvantage is a cicatrization which may be produced by healing.

PROGRESS NOTE.—A fellow with certain experience in medical writing has obtained a new job, with a FREE hand in writing editorials, a column on medicine abroad, and a column called "Dr. Pepys' Diary." The journal is Postgraduate Medicine; the fellow who has the job is Dr. Morris Fishbein.

The Michigan State medical journal used a painless way to remind physicians of the "Compleat Cardiac Diagnosticum" by looping together in an illustrated circle the various useful tools,—a stethescope, a blood-pressure apparatus, an ECG, a chest x-ray film, and a few test tubes. . . . The brains are taken for granted.

Although the most common cause of ERYTHEMA NODOSUM in the southwest probably is COCCIDIOIDOMYCOSIS, it is wise to remember that streptococcal infections are considered the prime origin in some places, tuberculosis is the major cause in other areas of the world, and drug intoxications, gonorrhea, syphilis, and lymphopathia venerum may also be the sensitizing agents. . . . Desert, or valley, fever may show the skin lesions in 6 to 15 per cent of the infections. . . . Paul, in Wisconsin, found that half of the patients with erythema nodosum, in which a chest x-ray and tuberculin test had been done, showed either enlarged hilar lymph nodes or a pleuroparenchymal lesion of tuberculosis.

Dr. Allen Voshell of Baltimore believes that even members of the American College of Surgeons need be reminded of fundamental principles in caring for INJURIES OF THE KNEE-JOINT. . . . They must know their anatomy and take a careful history to get the best results. . . . Injuries to the semilunar cartilages (menisci) are the most common cause of derangements, but one must consider that clots, fluid and fractures of the patella and tibial plateau may be present. . . . Football coaches and team physicians are urged to consider all knee injuries as potentially serious until proved otherwise.

A treatment for SECONDARY ALCOHOLISM comes out of the northwest, the source of the "conditioned reflex" or "discouragement" treatment. . . . Secondary alcoholism is that which results from a personality defect, such as emotional strain, psychopathic personality, psychosis, neurosis, or a criminal record. . . . The method used is a combination of the conditioned reflex therapy (with emetine), followed by pentothal narcosynthesis. The pentothal is given intravenously several times a week; the first interviews are prolonged, with subsequent shorter ones at intervals of a week or more. . . . A few individuals react badly to the drug, which then can not be used, but some obtain relaxation and help with little psychotherapy.

If the reduction in reportable INFECTIOUS DISEASES in Arizona cities loses its impact, consider a few facts about Madison, Wisconsin, population about 90,000,—they had only eleven, repeat eleven, resident deaths from infectious diseases in 1949. Nine were from tuberculosis and two from polio. . . . The lack of any mortality from scarlet fever, diphtheria, measles, meningitis, etc., is mildly surprising, but only one case of diphtheria was reported and none of typhoid and smallpox.

Another word from Wisconsin is a recent notice by the state Dental Society, which connects up with an editorial in ARIZONA MEDICINE, and with a recent bulletin from the University of Arizona Department of Agriculture. . . . Wisconsin has reached its goal of "50 by '50", which means that fifty cities and villages have started or authorized FLUORINATION of municipal drinking water. . . . Just previous to the "A. M." editorial in early 1949, only 14 cities in the U. S. had taken that step. In the Aggie bulletin, H. V. Smith and colleagues report with prolific detail "The Chemical Composition of Representative

Arizona Waters." (The bulletin is No. 225 if anyone cares to send for it.)

The recent theory of Dr. Alton Ochsner and his colleagues concerning the cause and treatment of the FIBROCYSTIC PANCREAS SYNDROME is not only intriguing in general, but should be of great interest to such Arizona authors as Dr. Harold Kohl and Dr. Vivian Tappan. . . .Their theory holds that the abnormal pancreas sends showers of nerve impulses centrally; a diffuse reflex efferent discharge of stimuli then is sent to all viscera; certain pulmonary and gastrointestinal manifestations may result (heretofore blamed on nutritional deficiencies); denervation of the pancreas by chemical, or finally by surgical, means interrupts the reflex arc and establishes a normal level of autonomic activity. . . . Actually, splanchnic block and splanchnicectomy in their small series caused an increased blood supply to the pancreas, followed by a secretion of the absent enzymes, as well as marked improvement in the primarily functional bronchiectasis. . . . The surgery is not simple, but the results in four of the five patients who survived were immediate and dramatic.

The glimpse of a new method is always exciting, even though its first use is limited and obscure. . . . Claude Beck and colleagues of Cleveland have devised a way to REVASCULARIZE THE BRAIN, a technique which may be of value in brain damage due to injury, inflamination, arterio-sclerosis, hemorrhage, or thrombosis. . . The common carotid artery is anastomosed to the internal jugular vein distal to a ligation. . . It has been found that mental retardation has lessened, convulsions have been minimized, and spasticity has decreased after the surgery. Beck is a former leader in augmenting the cardiac circulation by vascular grafts.

A combination of scrambled economics, international politics, and state medicine has put the GERMAN MEDICAL PROFESSION in wretched situation. . . . The West German zones have 15,000 more physicians than before the war, and about as many medical students as the United States, which has three times the population. . . . Ten thousand of the 60,000 doctors either have no employment, or work without pay; the other 50,000 do not earn enough to cover expenses. The fee of about $1 per patient per three months is paid by the insurance company. . . . They have actually considered interrupting medical education for three years—this in the country which was the clinical center of the world 25 to 40 years ago.

The work of Gye, in the Imperial Cancer Research Fund laboratories in London, could revolutionize the theories of CANCER ETIOLOGY. His results indicate a living, perhaps virus agent for the disease. . . . Disintegration of neoplastic cells by freezing and drying has been followed by neoplasms when the material was transplanted. It would indicate that the propagation does not occur because of living abnormal cells, but some material separable from cells. . . . The caution with which one must regard this work of Gye, and of Mann, should be as great as the problem to which it applies.

Notice

A Department of Electro-encephalography has been established in the Good Samaritan Hospital, the first private hospital in the state to do so.

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Mary McLoughlin, R.R.L.

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PERSONAL NOTES

DR. REED SHUPE of Phoenix has been appointed to the State Board of Health, succeeding **DR. VIVIAN TAPPAN.** Dr. Tappan resigned in order to continue as director of the rheumatic fever program of the Tucson Medical Center. The program is now sponsored by the State Department of Health, and rules prevent serving in both capacities.

DR. ROYAL RUDOLPH has been appointed to succeed **DR. BENSON BLOOM** of Tucson. Dr. Rudolph has practiced in Tucson since 1934 as a surgeon. He is a medical graduate of Washington University in St. Louis, and came to Arizona from Chicago. He is a member of the American College of Surgeons, and a diplomate of the American Board of Surgery.

Dr. Shupe's term ends Feb. 1, 1953, and Dr. Rudolph's Feb. 1, 1955.

The proposal to appropriate funds for an enlargement of the state tuberculosis sanatorium has not been included in Governor Dan Garvey's call for a special session. The legislature passed such a bill last spring, but it was vetoed by the governor. Appropriations for the welfare department and state hospital will be considered.

DR. GEORGE L. DIXON, orthopedic surgeon at 744 North Country Club Road in Tucson, has taken **DR. PHILIP G. DERICKSON** as his associate.

The Pima County Post-war Planning Board has recommended to the County Supervisors the expenditure of $5,000 to arrange for construction of a new or enlarged hospital. **DR. FRANCIS BEAN,** superintendent of the hospital, represented the hospital board.

MISS JANE RIDER, advisor for federal allocations, has stated that federal funds may pay from one-third to one-half of the costs. The remainder would have to be raised by a local bond issue.

The incidence of aftosa in Mexico has been reduced so greatly in the past six months that the border may be reopened for cattle shipments in 1952. The vaccination program has been greatly expanded, and the cost is markedly less. Aftosa is only a minor hazard to humans.

DR. J. P. WARD, director of the State Department of Health, has announced the completion of one hospital and the start of four others in the state. The infant, maternal, and tuberculosis mortality are the lowest on record in 1949. The mental hygiene and venereal disease programs have been expanded. The tuberculosis program included an ex-raying of 10 per cent of the population, but the greatest state health needs are a tuberculosis hospital and a new state laboratory.

DR. ARTHUR J. PRESENT of Tucson addressed the state training school of the American Cancer Society at Phoenix on "Radioactive Isotopes and Approved Methods of Irradiation Therapy in the Treatment of Cancer."

DR. LLOYD SWASEY of Phoenix, **DR. HAROLD KOSANKE** and **DR. CHARLES E. STARNS** of Tucson attended a two-day symposium on Chest Disease in Los Angeles.

The meetings were sponsored by the General Practice Section of the Los Angeles County Medical Association, the American Trudeau Society, the County Tuberculosis and Health Association, and six other medical groups. Speakers gave papers and panels on twenty-five basic diseases and symptoms. The speakers came from all parts of the United States.

THE CEREBRAL PALSY FOUNDATION OF SOUTHERN ARIZONA, INC., has been able to open a training center at 5402 East Speedway in Tucson. Several volunteer and one paid workers will help in the training.

The Industrial Commission of Arizona has accepted the recommendations of the Arizona Medical Association's Council on the limitations of payment for physical therapy. A maximum of twenty treatments may be given in not more than sixty days.

DR. WARREN H. COLE, Professor of Surgery at the University of Illinois, and noted author, addressed the Pima County Medical Society at its February meeting. Dr. Cole also gave a lecture at the Veterans Administration Hospital in Tucson on "Hyperthyroidism."

DR. D. C. MALCOM, surgeon on the staff of the Birmingham VA. Hospital at Van Nuys, California, also lectured during February at the Tucson VA. Hospital, the title being "Uretero-Intestinal Anastamoses in Various Conditions."

DR. JOHN W. KENNEDY, Phoenix, diplomate of the American Board of Radiology, is now associated with Drs. Watkins and Foster at The Pathological Laboratory in Phoenix.

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Diplomates of American Board of Radiology

The February meeting of the Maricopa County Medical Society was held in Phoenix February 6, 1950. The Scientific program was on the subject of "The Practical Approach to the Diagnosis and Therapy of Convulsions." Moderator was **DR. LINDSAY BEATON**, Tucson. **DRS. JOHN EISENBEISS, WILLIAM B. McGRATH, RICHARD DUISBERG** and **JOHN GREEN**, all of Phoenix, presented diagnostic, psychiatric, medical therapeutic, and surgical therapeutic aspects of the problem.

DR. MARCY L. SUSSMAN participated as guest speaker at the February 1950 meeting of the Los Angeles Radiological Society. He spoke on "Granulomatous Diseases of the Small Bowel," as well as "Newer Diagnostic Methods in Difficult Congenital Cardiac Cases."

DR. BRODA O. BARNES, Kingman and **DR. FRED G. HOLMES,** Phoenix, were in Chicago February 3-4 attending a regular meeting of the Board of Directors of the National Tuberculosis Association. Dr. Barnes is Arizona's representative director and Dr. Holmes is a Director-at-large.

Book Reviews

ESSENTIALS OF OBSTETRICAL AND GYNECOLOGICAL PATHOLOGY. By Robert L. Faulkner, M. D., F.A.C.S., Associate Professor of Gynecology, The Western Reserve Medical School; Associate Gynecologist, University Hospital of Cleveland, Ohio; and Marion Douglass, M. D., formerly Assistant Professor of Gynecology, the Western Reserve Medical School.
Second Edition—Cloth—Price $8.75. Pp. 357 with 300 illustrations including 3 color plates. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis, 3, Missouri.

The first edition of this work appeared in 1938. The present one is somewhat enlarged and amplified by truly fine illustrations of both gross and microscopic pathology. It extraordinarily well fulfills its aim to present a concise simple text book which can be used directly in class work. At the same time it offers for the busy doctor, an excellent review of pathology in a field in which it is so necessary for proper management of the patient. The arrangement of the book, the illustrations, the indexing, the paper and binding and printing are all of the highest quality. It is an excellent text not only for the student, but as well for the physician practicing any gynecology or obstetrics.

It is important to all members of the Association to patronize the advertisers who use space in our Journal. They pay the bills and make it possible for a bigger and better journal.

MEDICINE'S ROAD AHEAD

PART 2 — CAMPAIGN STRATEGY AND POLICIES

Address by Clem Whitaker

(Second National Conference, A.M.A., National Education Campaign, Drake Hotel, Chicago, February 12, 1950.)

Mr. Chairman and Fellow Campaigners:—

All of you, I imagine, have had somewhat the same experience during recent weeks that we have had here.

There has been an increasing demand for delineation of the 1950 campaign program.

Much of our mail has reflected a feeling of letdown after crisis. Many of the letters have indicated uncertainty as to where we go from here. Some of our correspondence, on the other hand, has exuded a spirit of unbounded optimism and confidence which we hardly share.

There have been critical letters, telling us exactly where to go and what to do—although not as many, I am happy to report, as there were a year ago at this same period.

There have been grumpy letters, sounding like the patient thought he was convalescent, with a "Give Me My Pants—I Want To Go Home" tenor.

Then there have been scores of letters starting off something like this:

"I had lunch with two doctors today. We discussed the campaign throughout the lunch hour and we're not satisfied with A.M.A.'s program. We worked out some ideas for a real program for the new year, and here they are . . . ."

One cryptic note said, simply: "The signals have changed; what do we do now?"

This doctor, incidentally, sent along one of his prescription blanks, with a notation at the top: "FILL IT IN, PLEASE."

That's a fairly accurate statement of what we are all here for today—to write a campaign prescription for 1950!

In many ways, it was easier to chart a course a year ago, when the immediate danger in Congress was greater, but when the issue was more sharply defined.

Regardless of any differences over the conduct of the campaign, or policies or strategy, I think most of us will concur heartily in Dr. Henderson's statement to the House of Delegates at its Mid-Winter Meeting that: "*American medicine has come a long way in a short time.*"

That, in itself, has complicated the problem which now confronts us, even though we are

proud of the new militancy and strength of American medicine.

Our opponents have become wary. They are no longer in a hurry to force a roll call on the direct issue of Compulsory Health Insurance. We have cured them of over-confidence. And as a result, their tactics have changed.

One of the immediate results of this change in tactics is evident in the increased pressure of the drive for the so-called "fringe" bills—and the temporary lack of pressure for action on bills to establish a Nationwide system of Compulsory Health Insurance.

The attack is diffused and therefore much harder to meet.

Instead of frontal attack, we are now faced with a form of guerrilla warfare.

There may be some satisfaction in the fact that our opponents are evidencing a grudging respect for American medicine as a political force. But a wary opposition, employing indirect attack and clever methods of attrition, makes it increasingly important that our campaign be well-grounded and vigorously conducted.

From our standpoint, the fundamental question involved in Compulsory Health Insurance is much more adapted to effective, clear-cut presentation than the hidden threat in a bill to provide Federal aid to medical education; the danger in a sickness-disability section of a proposed Social Security program, or the entering wedge for socialized medicine that is adroitly wrapped up in a school health bill.

Instead of being confronted with the task of defeating a revolutionary program of Government medicine, embodied in a single proposal, or in companion bills, we are now faced with a series of measures—disarming in language but dangerous in their provisions — some of which must be beaten and some drastically changed or amended.

No one of the "fringe" bills, by itself, would usher in a complete system of socialized medicine, but each of the bills is designed to achieve part of that objective.

These bills have been described as "the back door" approach to socialized medicine. That is gross understatement. At this session of Congress, the socializers are trying to come in the back door, the side door and the French windows. We can be sure of this, too, that if we relax our work on the main issue, they will soon be battering at the front door again!

There can be no letup this year in the basic campaign against Compulsory Health Insurance—and in the equally vital work in behalf of Voluntary Health Insurance—regardless of the heavy demands which will be made on all of us to meet diversionary attacks represented in the various "fringe" bills.

Entirely apart from what may come in legislative developments during the next few months —and the Washington scene, as we all know, is subject to swift changes—there will be a roll call on the issue of Compulsory Health Insurance in every State in the Union before the year is out.

For all practical purposes, the American people are going to ballot on this issue at the Congressional elections all over the Nation.

The issue already is drawn. A decision is inescapable. But even if we could, I don't think any of us would want to escape it. We need a showdown on this issue to resolve it.

This is a more crucial test of strength than any we will confront at this session of Congress.

The outcome of this Nationwide referendum will determine the complexion of the next Congress. If the margin of victory is decisive for either side, it will be construed as an accurate reflection of the people's position on this question—and Congress, in all likelihood, will accept that mandate and act on it.

There is much more than medicine's cause at issue in the 1950 Congressional races, as all of us know, and other issues and local conditions may complicate many of the contests.

The dominant, overshadowing issue, in almost every section of the country, however, will be whether the American people are ready to abandon ship and exchange their independence for State Socialism.

Socialized medicine has become the blazing focal point of that controversy — and the whole basic issue may well turn on our issue.

If we need great challenge and the dramatic impact of a momentous contest to rally American medicine to a supreme effort this year; if we need a prescription every doctor will understand, we have it!

If we can't dedicate ourselves to all-out battle on that issue; if that doesn't overcome uncertainty and erase every vestige of complacency, then the cause of freedom in medicine is hopeless—and the end of all our American freedoms isn't far distant.

This isn't a partisan issue; it goes much deeper than that. There are socializers, and apologists for Socialism, in both of our major parties —but happily, there are still leaders in both parties who have the courage to stand out against compromise and to crusade for American principles.

Senator Taft bluntly told the Republicans a few days ago that if the 1950 elections bring "a Congress more radical than the present one," the Truman Administration probably will be able to enact much of its so-called "Welfare State" program—and the fatal steps toward State Socialism will have been taken. If that

happens, he added, "there's not much use in looking to '52."

One of the great elder statesmen of the Democratic Party, Mr. James Byrnes, has spoken out just as eloquently on this fundamental issue—and there are millions of real Democrats, some of them in this room, who bitterly resent the attempt of Socialist carpetbaggers to take over their party and their country.

It is critically important that American doctors do everything in their power this year to stop the march of Socialism in this country—and to stop it at the polls by aiding in the election of Congressmen who will refuse to compromise on American principles.

Legally, however, it is imperative that doctors who engage in active support of candidates do so as individual citizens—and not under the auspices of their Medical Societies.

There are very definite problems of procedure involved — and we need to make realistic appraisal of them, so that every doctor may know his rights and responsibilities as a citizen, and so that the medical profession shall stay within the limitations placed on political activity.

We have employed special legal counsel—the law firm of Kirkland, Fleming, Green, Martin & Ellis—to prepare an interpretation of laws governing participation in Federal election campaigns—and copies of this analysis will be made available to you today.

This is basic:

The American Medical Association cannot, either legally or ethically, support or oppose candidates for public office.

The same limitation, our attorneys advise, applies to all State and County Medical Societies, whether incorporated or not.

That limitation prohibits a Medical Society from endorsing a candidate, from contributing funds to any candidate for Federal office, from using Medical Society letterheads or facilities to advance work in behalf of a candidate, and also prohibits a Medical Society from signing newspaper advertising in behalf of a candidate, or sponsoring any other form of advertising material for a candidate.

Don't let the don'ts discourage you unduly, however, because there are equally positive sections in the law outlining the rights of citizens to engage in political activity — and to form political committees for that purpose.

One other limitation should be noted: Individuals forming political committees must not make use of any official position or office which they may hold or occupy in any organization.

That doesn't prohibit the President of a Medical Society from serving on a political committee, or even as its Chairman, but it does prohibit him from using the title of his Society office in his political activity.

Many of these limitations, which appear in the Hatch Act, the Corrupt Practices Act and the New Criminal Code, frequently are violated by careless citizens, as we all know, but American doctors must conduct their political activity wholly within the law — and it is our obligation to see that they are advised of the provisions which govern such activity.

Now let's look at the positive side of this picture, because there is an urgent need for positive action if doctors are to measure up to their responsibilities.

"It is the right and duty of every citizen (I am now quoting our legal counsel) aggressively to further the candidacy of any qualified candidate for Federal office and actively to oppose the candidacy of any candidate felt to be unqualified.

"Any group of citizens (I am still quoting), whether on a National, State, or County level, can as individuals form political action committees for this purpose."

Local political action committees, operating within a single State, are preferable, our attorneys advise, as they have much greater freedom of action. There are many requirements—for detailed reports of contributions and expenditures—which apply to political committees operating in two or more States that do *not* apply to committees operating in a single State.

Returning to the positive side, with emphasis on the type of political activity in which doctors can legally and properly engage, here are some of your inalienable rights as citizens:

An individual can personally contribute any amount up to a maximum of $5,000 to or on behalf of a candidate for Federal office.

An individual, except those persons prohibited by law, can also solicit and receive contributions for the same purpose, except from those persons who are prohibited from contributing—for example from persons on relief, or persons holding contracts with the Federal Government.

An individual (unless specifically prohibited by his employment) can actively manage political campaigns and participate in them — by writing, speaking, or otherwise advocating a candidate's election.

There are many other "permitted acts", as the attorneys designate them, which certainly give doctors all the latitude they need for effective political action—and the facts should be made clear so that reckless charges by our opponents will not deter physicians from actively campaigning for the candidates of their choice.

Just to keep the record clear, here are a few additional do's and don'ts:

Anonymous handbills and pamphlets are both illegal and highly unethical. The law requires

that the name of the political committee sponsoring campaign circulars and posters—and the names of the responsible officers of the committee—appear on the printed material.

No corporation, whether organized for profit or not, can make any contribution or expenditure in behalf of any candidate for Federal office. Corporations are likewise prohibited from making any expenditure of corporate funds for the purchase of newspaper advertising or radio time in connection with any Federal election. This statute, of course, strictly applies to all incorporated Medical Societies, and the officers of such corporations are subject to both fines and prison sentences if the law is violated.

It is legal and proper for a political committee to inquire into a candidate's stand on any issue, but it is illegal and improper for such a committee to promise financial or political support, conditioned on the candidate's position.

Medical Societies not only have a right, but an obligation, to participate in registration drives—and "Get Out The Vote" campaigns, where the purpose is to encourage people to exercise their right of franchise, rather than to support any given candidate.

A Medical Society can write a letter to a member of Congress, or any other Federal official, *commending* him for his stand on a medical issue, or it can publish an editorial in its Journal or official publication, commending him. But a Medical Society should *not endorse* his candidacy; that is the province of a political committee.

That's enough on *the legalities* because all of you will receive copies of the complete interpretation of the laws governing participation in Federal election campaigns. And during the discussion period this afternoon we will attempt to cope with any further questions which may occur to you.

Now let's discuss, briefly, the practicalities of effective doctor-participation in election campaigns.

I'm sure all of us recognize the need for doctors to become crusading citizens at a time when our whole American way of life is threatened.

But how can they make their influence felt most effectively?

What can they do that will mean votes at the polls on election day?

All of us in this room recognize that most doctors are fighting the clock, that they are hard-pressed for time — and that any practical program of outside activity must be fashioned to get maximum results for every hour expended.

Fortunately, however, there are leaders in medicine in every section of the country who will take the time, regardless of what it takes out of them, to provide direction for the profession as a whole in the fight against socialization of medicine.

Undoubtedly the leadership in political action committees organized by doctors will come from these same men—and others they can recruit to help them. But the personal work of the rank and file must be made to count on election day —and that calls for a simplified program geared to a busy practitioner's day.

Many of you come from States where doctors have long been active in election campaigns—and we will hope to hear from you during the discussion period. No one has a corner on ideas for effective political organization . . . and local plans must be geared to meet local conditions.

We can dispose of some of the obvious requirements very quickly.

There shouldn't be a doctor in this country who doesn't register and vote this year — and there shouldn't be any member of a doctor's family who fails in these basic responsibilities.

If ever any group needed to place a superlatively high value on its right of franchise, that group is the medical profession—in 1950.

The doctor who doesn't vote this year is not only letting down his profession, and all the men in public life who have championed medicine's cause; he is also letting down his country—and inviting destruction of the system he lives by.

That message needs to be hammered home with every means at our command — and there are no legal restrictions on that type of activity. That's just one of the fundamental requirements of good citizenship.

From experience in key States, we know that a few doctors can take the initial steps in setting up a Medical-Dental Committee, or a Healing Arts Committee, which can become a veritable political powerhouse in a Congressional campaign.

Often not more than a dozen men participate in setting up the original framework of the committee, but these men usually are leaders whose names on a letterhead will command confidence of the physicians, dentists, druggists and other allies who will be invited to join and contribute to the movement.

The committee, in most instances, is organized as a branch of the general campaign committee for the candidate, but takes on the specific job of mobilizing all who are affiliated with health activities — and usually finances its activity through collections from its own group.

After the initial organizing committee is established, it normally reaches out for financial support and mass-membership through a hard-hitting letter to all members of the profession and allied groups — clearly defining the issue involved in the contest, and appealing for mem-

bership and active participation in the campaign.

General meetings—of the profession and allied groups—sometimes are held to supplement the letter-appeal for members, and to outline the work to be undertaken.

Volunteer workers in political campaigns need specific instructions—and specific jobs to do—if their work is to be effective.

That's one of the most important undertakings of the initial organizing committee—to decide on a simple plan of campaign which can be clearly interpreted to those who will be asked to join in the movement, and which can be put into operation with a minimum expenditure of time and money.

Usually a return-card goes out with the first letter. One line says:

"Please accept my contribution of $_____ enclosed herewith."

A second line may read:

"Please add my name to your committee."

There are other lines suggesting that the recipient agree to serve on a speakers' committee, distribute literature, participate in house-to-house work, telephone a given number of friends and neighbors, etc. The recipient checks the jobs he is willing to have assigned to him.

Without doubt the most effective single job doctors can do in a Congressional campaign, in most districts, is a thorough-going letter writing job, beamed to their patients—personal letters, signed by the doctor on his professional letterhead, and mailed in his own envelopes.

That job, in the States where it has been done most effectively, has been carefully organized and directed so that every patient on every doctor's list can be covered with a minimum expenditure of time on the part of the doctor himself.

It requires highly competent clerical help in the central office of the committee, with volunteers from the Woman's Auxiliary often handling direction of the work of addressing envelopes from the doctors' lists of patients—when the individual doctor's office isn't staffed to do the job for him.

There are many other vital types of work which a Medical-Dental Committee, or a Healing Arts Committee, can carry on, if the committee has adequate funds and manpower. In most States, such committees conduct an intensive publicity campaign, sharply focusing public attention on the threat of socialized medicine. This, in some instances, has been augmented with a paid advertising campaign, utilizing newspaper ads, radio commercials and posters.

Let me emphasize again, however, that political action committees of this nature, which lend their support to candidates for Federal office, must be independently organized by individual doctors. They cannot, in any sense, be subsidiaries of Medical Societies — and neither the A.M.A. National Education Campaign nor Whitaker & Baxter can legally be associated with them in any way.

If this type of direct political work is done, it must be done on the local level by individual doctors, determined to aid in the election of Congressmen who will do their utmost to stop the spread of socialization in this country.

There may be some doctors who are still unconvinced that they should engage in practical politics, but I believe that most members of the profession already recognize that either they must become proficient in the business of self-government, or get ready to accept political-dictation from Washington.

No one who defaults in his duties as a citizen, on the flimsy pretext that politics is a dirty business, can protest too much if he wakes up some morning to find himself a captive-citizen, with the socializers and the do-gooders and the ambitious Caesars of politics as his captors. That's the price every free people has paid when it failed to prize its freedom enough to defend it.

In summing up, I want to stress, as Miss Baxter already has, the vital need of a strong, affirmative program this year in behalf of the Voluntary Health Insurance systems.

The people of America this year, more than at any other time in our history, will be turning an appraising eye on the medical profession and the program of medical care which it sponsors. The work of our Voluntary Health Insurance systems will be weighed in the balance against the extravagant promises of the advocates of a Compulsory system.

We can depend on the people, I am confident, to discount very heavily the political promises which emanate from Washington; we can depend on them, too, to make allowances for inadequacies of the Voluntary systems, if they are convinced that we are doing our utmost to overcome imperfections of the present system.

The doctor and hospital-sponsored prepaid plans, and the private health insurance plans, need much more than increased enrollment, vital as that objective is. They need to meet the challenge and provide real catastrophic coverage; they need to put much more emphasis on individual enrollment, so that persons who are not members of a group can provide their families with adequate protection. And we all need to devote ourselves to the task of finding a satisfactory solution of the problem of the aged and the indigent.

We need this year to prove to the whole country that the Voluntary Health Insurance plans are rapidly overcoming their limitations and are

providing the people with the finest possible type of medical, surgical and hospital coverage.

Undoubtedly, we will still be short of our ultimate goal at the end of 1950. But if we do our job well, and publicize it well, at the end of this year there shouldn't be any question left in the minds of the people on the earnest devotion of American medicine to its task of bringing adequate health care within the reach of every citizen.

We have many fronts to man this year. The Antitrust Division of the Justice Department is still busy with its politically-inspired investigation of Medical Societies. There is heavy political pressure by the socializers in Washington to make A.M.A. the principal target of a Congressional lobby investigation.

There's the scattergun attack posed in the so-called "fringe" bills — and the imperative need of expanding our campaign against Compulsory Health Insurance so that the people can have the facts before they go to the polls. Then, there's the constructive work to be done in improving and building the Voluntary Health Insurance systems.

There's battle and hard work ahead on every front. But American medicine today has brought new hope to those who believe in a free America. We are under heavy attack because the doctors of this country have succeeded where others have failed — and have slowed the march of the socializers.

We can be very proud of the enemies we have made, as well as our friends. And by the end of 1950, if we all do our work well, perhaps we can paraphrase the words of the Apostle, and say:

We have fought a good fight,
We have kept the faith.

God, and the voters being willing, we might even be able to add:

We have finished our course!

Red Cross

Office of Public Information
Pacific Area Office, American Red Cross
1550 Sutter Street,
San Francisco, California

Disaster strikes swiftly and often with little warning many times a year throughout the nation. It may be a hurricane lashing our coasts, a rampaging river leaving destruction and tragedy along its flood-soaked banks, fires snuffing out lives and wiping out homes and institutions, or snows and icy blasts isolating small communities from sources of food and supplies.

When a disaster hits, the American people—through their Red Cross functioning in 3745 chapters throughout the nation—lend a helping hand to stricken neighbors. Food, clothing, emergency medical supplies are furnished in the initial stages. Long-term aid to those unfortunate victims, who do not have the resources to rebuild homes and small businesses, takes the form of rebuilding and repairing homes, providing new home furnishings, replacing destroyed farm or business equipment; and providing maintenance and extended medical care where it is needed to make a disaster victim self-sufficient again.

During the past fiscal year help was extended, through the American Red Cross, to 228,515 persons who suffered losses in 330 disasters. Disaster relief and rehabilitation is one of the Red Cross services for which the organization comes to the American people in March for a contribution of $67,000,000 to carry on its humanitarian work for the coming year.

Another major responsibility of the Red Cross is to the nation's servicemen. The Red Cross is to them their link with home. To the Red Cross workers serving with the armed forces at home and overseas, servicemen turn in time of trouble for personal counselling, emergency financial assistance, speedy, reliable welfare reports on home conditions or verification of need for emergency leave, which is granted by the military. To the Red Cross, too, and its thousands of volunteer workers, servicemen and women in military hospitals look for help with personal problems and recreational services which ease their restlessness and contribute to their return to good health.

The nation's large and growing veteran population depends greatly on your Red Cross for counselling with personal and family problems and help in securing government benefits. In Veterans Administration hospitals, trained Red Cross volunteers assist the hospital staff in carrying out medical, recreational and welfare programs. And in the field of community health and welfare, the dividends accruing from Red Cross courses in home nursing, water safety, first aid and accident prevention, are immeasurable. Add, too, the growing National Blood Program which aims ultimately to provide whole blood and its derivatives at no cost for the products to physicians for treatment of their patients.

Make your support of the 1950 Red Cross fund generous. *All may help.*

REPORT TO THE ARIZONA MEDICAL ASSOCIATION
On the National Education Campaign Of the American Medical Association

On February 12, 1950, in the Grand Ball Room of the Drake Hotel in Chicago, Illinois, and in the company of Robert S. Flinn, M. D., President of the Arizona Medical Association, I attended the Second National Conference on the National Education Campaign, sponsored by the Campaign Coordinating Committee and Board of Trustees of the American Medical Association, attended by representatives of State Medical Societies and others.

The meeting was called to order by Elmer L. Henderson, M. D., President-Elect of A.M.A. and Chairman of the Campaign Coordinating Committee, who presented the address of welcome.

Ernest E. Irons, M. D., President of A.M.A., spoke on "Clarification of Responsibilities in the National Education Campaign." He outlined the organizational procedures and responsibilities of each within A.M.A., commencing with the House of Delegates in establishing policy; Board of Trustees constituting the interim body and financial authority; the office of the Secretary and General Manager; the Coordinating Committee comprising members of the House of Delegates, Board of Trustees and Officers of A.M.A.; the Washington Office and associated Legislative Committee; Public Relations and Medical Service Departments. His concluding remarks emphasized the importance of developing "Emergency Call Centers" where they do not already exist to assure medical care at all hours; the establishment of "Grievance Committees" to improve physician-patient relations and support of all local "Voluntary Insurance Plans." Pointing out the need for "putting its own house in order" by the medical profession, he urged State Societies to meet with the local County Societies in an endeavor to determine "wherein we fail in the care and treatment of patients."

George F. Lull, M. D., General Manager of A.M.A., discussed the "Financial Picture," explaining the action of the House of Delegates who, for the first time, found it necessary to level dues in an amount of $25.00 against its membership, excepting (1) in cases of hardship where County Societies shall have determined that such assessment of dues is a hardship but in no case will A.M.A. dues be remitted unless such local Society has similarly remitted its dues in individual cases; (2) in the instance of interns wherein said local Society has similarly remitted dues; (3) after July first and for the balance of the year, new members will be assessed dues in an amount of $12.50; and (4) members having paid current A.M.A. dues, on transfer, will not be required to pay twice in the same year. Dues shall be paid to the State Societies and collected or turned over to the State Associations for remittance to A.M.A.

Leone Baxter, General Manager of the National Education Campaign, outlined Part I of Medicine's Road Ahead, setting forth 1950 Objectives, Plans and Procedures. On the constructive side: (1) enlarge the ever-growing support of strong allies through an intensified campaign to place before them, the true issues and problems to be met; (2) be alert and ever-ready to detect and defeat harmful and complex legislation; and (3) improvement of health insurance. It was stated: "today, medicine is off the defensive and we must develop in the home town the fact that medicine can do the job and do it better than Government can do it for us." It was pointed out that in California, a "catastrophic" insurance contract is now available, written along with and in conjunction with existing health insurance coverage at a very nominal additional charge varying on the basis of individual vs. family coverage at a cost not exceeding $1.95 and specifying such long term diseases as heart, cancer, tuberculosis, etc. The "endorsement" program of getting the people on record through associations, organizations, etc., is considered the best campaign of attack and the staff of Whitaker & Baxter is ready and available to assist through field representation whenever called upon. Women's Auxiliary leaders need more policy direction from local societies than they are getting now, she stated, and it was urged that this media be explored to the full.

Clem Whitaker, Director of the National Education Campaign, outlined Part II of Medicine's Road Ahead, describing the campaign strategy

and policies. It was stated that we are now faced with a series of "fringe" bills which are expected to mount in number throughout the 1950 Congressional race. It can be appropriately asked: "Are the American people ready to abandon the job and take on State Socialized Medicine?" An interpretation of the laws governing participation in Election Campaigns, prepared by Kirkland, Fleming, Green, Martin & Ellis, Attorneys-at-Law, 33 N. LaSalle Street, Chicago, Illinois, was presented and summarized by Mr. Whitaker. It was pointed out that the A.M.A., as well as State Associations and County Societies, cannot support or oppose candidates for political (Federal) office, and individual physicians cannot use Association designation in assuming membership or chairmanship of groups engaged in political activities, in accordance with the conditions or limitations set forth in the Hatch Act, the Corrupt Practices Act and the New Criminal Code. It was suggested that State Associations take it upon themselves to inform its local County Societies and the firm of Whitaker & Baxter, if necessary, has offered to supply additional copies of the legal memorandum submitted for such purpose. Practicalities of effective service in the campaign by doctors were set forth: (1) doctors should register and vote this year and this includes every eligible member of his family; (2) establishment of an active medical "dental" committee and one of the "healing arts;" and (3) write personal letters to patients on individual letterheads and here it was suggested, if office staffs were inadequate, the services of the Auxiliaries in addressing envelopes, etc., could be used to good advantage. Caution was forewarned that such political action must be done outside the Society. It was announced that an intensive advertising (press-radio) campaign was just approved, if funds be available at the time, possibly to be undertaken in October. A similar campaign in California to enlighten the people of the broad medical care available to them and why the Medical Profession was behind it proved very effective, so advised Mr. Whitaker.

The afternoon session was convened and Louis A. Bauer, M. D., Chairman of the Board of Trustees of A.M.A., reviewed A.M.A.'s Position on Pending Legislation and actions of approval or disapproval taken. He outlined services rendered the practitioner by A.M.A., and in stressing unity, urged action in providing emergency call facilities, meeting the challenge of over-charging within the profession and establishment of effective grievance committees.

Joseph S. Lawrence, M. D., Director of the Washington office of A.M.A., spoke on "What Are the Prospects at the Current Congressional Session." He called attention to the possibility of a reorganization bill, much the same as last year, assuring a prompt report should it materialize. In answer to his self-imposed question: "What can I do (the Doctor)?" he urged upon the physician to individually keep in touch with his Senators and Congressmen. Write them frequently. Ask them about pending legislation and their stand on the issue. Likewise, in answer to the question: "What can the Society do?", he stated: have every member of your Society pledge himself or herself to write his or her Congressmen at least once during the Session. It is an accepted theory by your Congressmen that each physician represents at least fifteen other persons. And, have the Auxiliary members do likewise. It may be effective to have all members sign pledge cards to this effect. The Washington offices will move from 1302 Eighteenth Street to 1523 L Street, taking over three floors of a recently remodeled building, to accommodate expanded activifies.

Mrs. Paul Craig, National Public Relations Chairman, Woman's Auxiliary to A.M.A., presented a paper on Auxiliary Cooperation in the National Education Campaign. The Auxiliary, now twenty-eight years old, represents a present-day membership of 50,000. In a canvas of some ninety Auxiliaries located throughout the country, the crying need for information on voluntary insurance plans and creeping socialism, leadership and instruction in order that Auxiliaries may do an effective job along side their men was stressed.

Charles S. Nelson, Executive Secretary, Ohio State Medical Association, discussed: "Doctors and Politics." A special committee has been organized to get doctors interested in the candidates for public office and cooperating in selecting high class persons to run for public office, placing emphasis on candidate and not party. Following nomination of a candidate—*not after election*—a special committee drafts questions it wishes to have answered by, and confers with the nominee, and on approval, support as individuals, the respective nominee or nominees. A very exacting survey was made

in 1948 of the voting record of physicians and their wives as well as those of various Civic Organizations, etc., and it was startling, the large per cent within the several groups who did not vote or even register, with a low of 13% to a high of 30%. He outlined their plan of poltical action declaring: it's legally sound, ethical and workable.

James F. Norton, M. D., President, New Jersey State Medical Society and Vice President of A. M. A., spoke on: "Accent on the Positive — A Progressive Medical Program to Meet the National Health Problem." He claimed that Blue Cross was born in New Jersey and that the State was No. 5 in the introduction of Blue Shield. He claimed support of the New Jersey Plan by the State Association, Blue Cross and Blue Shield and others.

The meeting was then open to discussion from the floor, which proved enlightening in clarifying certain issues, instructive as to what other Societies are doing throughout the country and a display of unity in the campaign against Compulsory Health Insurance.

Respectfully submitted,

Robert Carpenter,
Executive Secretary,
Arizona Medical Association.

PROCEEDINGS

WESTERN STATES MEDICAL CONFERENCE

Stratton Room, Brown Palace Hotel,
Denver, Colorado, January 8, 1950

(Note: This Conference, similar to one conducted in Denver, July 31, 1949 was called informally by officers of the California, Colorado, and Oregon State Medical Societies by telegrams addressed to the officers of all state medical societies west of the Mississippi River, for discussion of current national legislative matters affecting medicine. Sixty-six physicians and seven laymen attended. Dr. Robert S. Flinn, Phoenix, Arizona, President, Arizona Medical Association, represented Arizona.)

The Conference was called to order at 9:15 A. M. by Dr. Fred A. Humphrey, Fort Collins, President, Colorado State Medical Society. By informal roll call those attending were introduced to each other. The California delegation nominated Dr. Humphrey as Chairman of today's conference, and he was elected by acclamation. Dr. Humphrey appointed Mr. Harvey T. Sethman, Executive Secretary of the Colorado State Medical Society, as secretary for today's conference.

HR 6000

Chairman Humphrey called on Dr. Charles Henry, Little Rock, Arkansas, to open discussion on HR 6000, which has passed the U. S. House of Representatives and is pending before the Senate Finance Committee. Dr. Henry briefly outlined the bill, which is a consolidation of the basic bills HR 2892 and 2893 introduced in February 1949. He stated that this bill was designed to extend the Social Security program to eleven million more people. Thirty-five million are already under this program. It would increase and multiply taxes, would liberalize the service programs of public assistance, and would initiate a Federal disability program which is another step in the direction of nationalization of medicine. Dr. Henry then circulated through the group: (1) The Curtis Report on Social Security, (2) Dr. Shearon's report dated December 29, 1949. Dr. Henry stated that the A.M.A. House of Delegates opposes that section of HR 6000 which deals with total disability insurance. He stated that the position taken by physicians in Arkansas is that this whole bill is vicious and harmful to the nation. He stated that action taken in the previous Denver conference was responsible in a large measure for defeating Reorganization Plan No. 1 (which would have established a Department of Welfare) and he urged that this same action be repeated to defeat HR 6000.

Dr. Joseph Lawrence, Director of the A.M.A. Washington Office, stated that the supporters of HR 6000 are: (1) the government; (2) organized labor; (3) segments of industry; (4) welfare organizations, and (5) certain hospitals, and that these organizations have delegates ready to go to Washington to support this legislation. The group opposing the bill are: (1) the economy group in the Senate; (2) taxpayers associations; (3) Christian Science churches and other church organizations. Dr. Lawrence urged that each member of the Conference contact his Senator and Representative individually and get him to oppose this bill.

Dr. Dwight Murray of California asked whether it would be best to defeat the bill in its entirety, or would it be better to try to defeat the

section that deals with disability. Mr. Ray Wright of Kansas expressed the opinion that the entire bill was economically unsound. He stated that the Life Underwriters have organized to conduct a survey to determine the individuals who know senators personally and have them use additional pressure to oppose this bill.

Dr. Cyrus Anderson, Denver, read a letter from U. S. Representative Wayne Aspinall in answer to a telegram sent to him regarding HR 6000. In part the letter stated that in Rep. Aspinall's opinion HR 6000 had no reference to the medical profession and that indirectly it would be a boon to doctors.

Dr. John Glen of Houston stated that one of the stigmas that attaches to doctors is the idea that they are medical men before they are citizens. He stated that doctors have rights to opinions as citizens, and we should express them. He believed this bill is unsound whether it applies to medical men or not. He urged that the present Social Security Administration be thoroughly investigated and exposed.

Dr. Buckley of Oregon asked what would be the best methods of opposing the bill, and the most convincing arguments against it. Dr. Murray Eddy of Kansas believed one good method of defense would be an attack on the Social Security Administration to put it on the defensive.

Mr. Wright proposed that the members of the conference work on the existing Congress, and then attempt to "amputate" those who advocate these nostrums and keep them from coming back to Congress. He suggested a combination of a grass-roots campaign, in addition to lobbying activities and national organization.

Dr. Blasingame of Texas stated that he could see a likelihood that the measure would pass. He urged that members of the conference realize that the medical profession will gain strength by opposing this bill, even though it may pass. Dr. Bouslog of Denver suggested that we use our Chambers of Commerce and solicit their support in defeating this bill. Dr. Garrison of Oklahoma stated that one purpose of this meeting was to unify our efforts not only among the medical profession but with other organizations as well. Dr. Overton of Texas asked Dr. Lawrence to inform the different states promptly as to what organizations will testify on this bill so that we could coordinate our efforts on a local level, and know specifically what groups and individuals will appear before the committee. Dr. Lawrence said his office would do so.

Dr. Henry then summarized the discussion and Dr. Humphrey asked for a motion concerning any action to be taken.

Dr. Halley of Denver moved that it be the consensus of this meeting that HR 6000 be opposed in its entirety, and that as a correlative thereto an investigation of the present Social Security program be requested. Dr. Humphrey appointed a committee consisting of Dr. Halley, Chairman; Dr. Garrison, Philip Overton of Texas and Ray Wright of Kansas to draw up a resolution to this effect. (Later in the proceedings this Committee reported its resolution which was unanimously adopted. See Resolution No. 1 attached.)

S. 1411

Chairman Humphrey called on Dr. Sam McClendon of California to open discussion of S. 1411, the so-called School Health Services Bill, which has passed the Senate and is pending before the House Interstate Commerce Committee. Dr. McClendon pointed out that this bill, if passed, would include a compulsory periodic examination of all school children at public expense, regardless of financial status of the parents. The allotment of money would be made by the Social Security Administrator. He stated that the bill should in all probability be opposed in its entirety, and stressed that section "C" providing for free treatment of all school children is particularly obnoxious. He stated that the A.M.A. had gone on record against this bill.

Dr. Brooksher of Arkansas moved that this conference reaffirm its opposition to S. 1411 in toto, that we call upon the A.M.A. Legislative Coordinating Committee to take all possible steps to oppose this bill, and that we call upon State Medical Societies to secure support from all sources possible within their states to defeat the bill. Dr. Brooksher's motion was seconded and passed unanimously.

Dr. Lawrence then discussed the present status of the bill. The bill was studied by a Sub-Committee of the Interstate and Foreign Commerce Committee; it has not passed the principal committee as yet. The A.M.A. Legislative Committee is opposing the whole bill. Supporters of this bill are: (1) the U. S. Children's Bureau;

(2) U. S. Public Health Service; (3) "Parent's Committee;" (4) Dentists and some doctors; and (5) organized labor. Opposition consists of: (1) General idea of economy; (2) A.M.A.; and (3) certain educators, on the ground that the examinations would be put in the Health Departments, and they want them in the Department of Education.

Ray Wright stated that the Insurance business has been fighting this bill for the last four years. The real principles of this bill do not focus themselves on Section "C." The most important factor in the whole bill is that at any time federal agencies see fit to subsidize any particular group or activity they attach strings to it which become bonds of steel, and which result in more and more control by the body which furnishes the money. This bill is a definite step toward federal control of our school system.

Dr. Henry of Arkansas stated that in his opinion the most vicious part of the bill is that it indoctrinates 29 million children every year to accept a government dole. Dr. Glen of Houston asked that a transcript of whatever action is taken by this group be sent to the members of the Executive Board of the Academy of Pediatrics. Dr. Montgomery of San Francisco stated that San Francisco is circumventing any survey that the Federal Government is instigating, by doing the same job on a community basis. He further stated that they had sold their citizens locally that the U. S. Public Health Service could not do more than they could do community-wise.

Dr. Munro of Colorado urged that this committee bear in mind that when we oppose this bill, we are opposing the most powerful appeal that can be made—the appeal of the crippled child. We must be very vocal about what has already been done and is being done. We must not leave ourselves open to criticism when we oppose a bill which to the public means care to the crippled child, but must stress definitely the set-ups already in operation.

Mr. Graham of Oklahoma asked for a list of the members of the A.M.A. Legislative Coordinating Committee which will meet one week from today at the Palmer House in Chicago. Dr. Irons recalled the following as members: Dr. Harvey B. Stone of Baltimore; Dr. Joseph McCarthy of Omaha; Dr. F. J. L. Blasingame of Texas; Dr. Dwight Murray of California; Dr. Oscar B. Hunter of Washington, D. C.; Dr. W. H. Huron of Iron Mountain, Michigan; and Dr. M. J. Dattelbaum, Brooklyn, New York. Mr. Graham then asked to what extent there had been meetings between the A.M.A. and other national organizations, and what other organizations had expressed a desire to cooperate. Dr. Lawrence listed other organizations as the Farm Bureau Federation; the Insurance Companies; American Legion; the National Association of Life Underwriters; and The American Life Convention, composed of Presidents of all Life Insurance Companies in the U. S.

Dr. Blasingame stated that the Legislative Coordinating Committee is to have its initial meeting next Sunday in Chicago. He said that he would personally like to see one of the responsibilities of this Committee be the initiation of further cooperation at the national level of the fight against statism in every respect. Dr. Murray stated that there has been a lot of work done on the National level with the Chambers of Commerce and that we have a great deal of cooperation from the U. S. Chamber of Commerce.

Dr. Haddon Peck, Kansas, stated that at the National Federation of Farm Bureaus meeting in Washington, Dr. Crocket's Committee has done fine work. They approached the rural communities from the standpoint that if they approved of the type of medical care they were getting, they should protect that type of medical care. He suggested that the medical profession should have one or two men on a national level as a contact group with these other organizations.

Mr. Ray Wright stated that doctors and insurance men are the two groups who have access to the minds of a class of people that no other business men enjoy—the organized labor groups and the lower paid groups whom both the doctor and the insurance men see often. His insurance organization is developing a give-away pamphlet to debunk some of the economic fallacies and will see that one of those gets into every home in America.

Dr. McClendon then summarized the discussion, opposing S. 1411 in toto because: (1) It adds nothing to the child's welfare; (2) It would give Social Security Administration additional powers, and amounts to an additional sub-

sidy; and (3) It indoctrinates 29,000,000 school children with government control.

Thereupon a motion was made and seconded that S. 1411 be opposed by this Conference in toto, and a Committee was appointed with Dr. Brooksher as Chairman, Drs. Peck and McClendon to draft a resolution to this effect. (Later in the proceedings this committee reported its resolution which was unanimously adopted. See Resolution No. 2 attached.)

S. 1453

Chairman Humphrey then called on Dr. McKinnie Phelps of Denver to discuss S. 1453. The bill was originally introduced last March by Senator Pepper, and revised and re-introduced in August in behalf of the "Committee on Public Welfare." This bill, according to administration arguments, would increase the output of medical students, and finance new medical schools. Payments to medical schools by the Federal government, under the bill as now revised would be $500 per year for each student normally enrolled, and $1000 for each student accepted above the normal enrollment. Federal scholarships for students which are also provided in this bill, won't be paid to the school as long as that school can fill its student body with students able to pay. The act would be effective for a five year period. Five million dollars would be laid aside for aid in construction of new schools. The major problem is the principle of federal aid to medical schools. The end result would be federal control of medical schools by their continued dependence on the federal funds. New schools would receive aid disproportionate to established ones, in that the bill would give $1,000 for each student in all new medical schools, while in old schools such aid would be limited to approximately 30% of the enrollment. Our problem in opposing this bill is one of public relations; organized medicine faces a public demand for increased production of doctors. We must convince the American people that we are not opposed to the production of more doctors. If we oppose this bill flatly without carefully proving that we *are* increasing the number of doctors, we will hurt our over-all public relations.

Dr. Lawrence stated that S. 1453 had Senate hearings last year, passed the Senate, and went to the House. The bill was a product of conferences between the Senate Committee, dentists, doctors, nurses and deans of medical schools. The bill has passed the House Committee on Interstate and Foreign Commerce and is in the House Rules Committee to petition this bill out of the Rules Committee for vote by the House. A petition to have the bill moved would be filed, then 21 days must elapse during which time the Rules Committee could bring the bill out of its own volition. If not, at the end of 21 days, the Chairman of the Interstate Commerce Committee may ask the Speaker of the House to call that bill out immediately. This can only be done on the 2nd or 4th Monday of a month. Then there will only be two hours allowed for debate, and a vote will have to be taken. Dr. Lawrence feels there is a good deal of opposition in the House to the advancement of this bill. The schools are already receiving grants-in-aid for different kinds of work from the Federal Government at the present time. Those supporting the bill are: (1) some of the medical school deans; (2) some of the hospitals conducting nursing schools; (3) dentists; (4) organized labor, and (5) the U. S. Public Health Service. Opposing the bill are only those fighting on the basis of economy, and ourselves.

Mr. James Baley, Marshall, North Carolina; Attorney, National Organization of Hospital Schools of Nursing, Inc., stated that in 1948 Dr. Esther Lucile Brown, Ph. D., wrote a book, "Nursing for the Future," published under the sponsorship of the Russell Sage Foundation. Her book urged that Hospital Nursing Schools not connected with universities and not able to confer degrees be eliminated. It urged creation of a national accrediting bureau in New York to accredit schools of nursing. This group would circulate a list, and by virtue of what Dr. Brown calls exertion of social pressure, discourage students from attending schools not accredited. She advocated federal aid to schools of nursing. In addition to establishing a list of accredited schools they formed a "Committee to Implement the Brown Report." They then changed the committee's name to the "Committee for the Improvement of Nursing Service," now dominated by the Federal Security Administration. Mr. Baley stated that S. 1453 provides that schools which are to receive aid must be approved or accredited by a recognized body under the supervision of the Surgeon General. This would mean that the Surgeon General would have power to

recognize any group, and no funds would be available to anyone not on that list. Mr. Baley stated that Dr. James W. Davis of Statesville, N. C., and others went to work on public opinion in their Southeast U. S. area. They aroused public interest through the danger to the nursing profession, calling attention to the methods that were being used to close hospital schools. He pointed out that the list as published would disaccredit approximately 250 hospital nursing schools now approved by the State Boards of Examiners. The list of "accredited" schools was published on page 34 of the November American Journal of Nursing. Mr. Baley stated that it was entirely through the efforts of the group of nurses in his area whose interest had been aroused, and the opposition of this group that this bill had been once defeated in its original House of Representatives form.

Dr. A. M. Popma of Idaho stated that the bill would no doubt receive support from states that do not have medical schools, and whose boys find it difficult to get into schools in other states, and we need some arguments to combat this sentiment. Dr. McClendon stated the Federal Government has never subsidized anything it did not eventually control and that in a matter of a short time the government would be telling students who graduate under this bill where they must practice.

Dr. Christian of Iowa advanced the opinion that privately owned medical schools are in severe financial straits, and that some means of helping these privately owned schools should be devised. Dr. Blasingame of Texas stated that in a conversation with Dr. Sheele, Surgeon General of the U. S. Public Health Service it was brought out that one reason that it costs more to teach is because of federal deficit financing. These private schools have to be shown that endorsing this bill makes their predicament worse. Dr. Murray stated that there was a question as to whether private schools were really in financial trouble, that they are not if they confine their courses to basic instruction and not endeavor to do excessive research.

Mr. Graham stated that Oklahoma has counties with only one doctor. While we know this bill will not get a physician in such a county, the public is willing to gamble that it will. It was Mr. Graham's opinion that we should oppose this bill, but the A.M.A. should come up with statistics to show that within a ten-year period the normal increase of students graduating from medical schools is actually going to do this job. This would go a long way in presenting effective opposition.

Dr. Buckley read a resolution opposing Bill S. 1453, which was upon motion made and seconded, adopted as a resolution of this Conference and is attached hereto as Resolution "3."

Dr. Phelps, in conclusion, stated that opposition to this bill should be pointed to as wide a group as possible. It should be stressed that we don't have any emergency need for doctors, as has been presented in the text of the bill. This information should be spread abroad by every means available—by the local press, by impressing it on the Deans of Medical Schools who do not understand the situation, to publicize it to their student bodies and to their communities.

Dr. Christian pointed out that the problem of medical schools is a matter of funds, but communities have not been told that this lack of funds is due to an excessive drainage by the Federal Government of funds that might otherwise be available from a state or county level. Why not propose to the Federal Government that they subsidize taxpayers by reducing the income tax of all persons by the amount that they support their medical schools?

A member stated that most of the deans individually do not favor this bill, but they fear their Boards of Trustees or Boards of Regents and will not express their own views.

Luncheon Recess — Dr. Irons' Talk

Guest speaker at the luncheon was Dr. Ernest E. Irons, Chicago, President of the American Medical Association. Dr. Irons began by stating that he "did not believe it would be possible to get this kind of meeting in the east on five days notice." He expressed the opinion that it was the spontaniety of meetings of this kind that made them particularly effective. He posed the question: "How did we get this way?"

"All through history we have repeated the same kind of program that we are going through nationally at the present time — always with the idea of 'helping the poor Indian'—and the usual material that we are used to hearing from Washington. As a profession we find ourselves about half way behind the eight ball in opposing these things that we have not protested before. The reason is that a lot of us have not known

what was going on—three-fourths of us do not know now. We are embarrassed, therefore, in opposing bills wherein, were it not for the welfare of our country, we might not be so unwilling to get a little something for ourselves. I would not compromise on any of them—but we are in the vulnerable position of always being opposed to something.

"We *are* opposed to anything that smacks of Socialism. On that basis we can oppose bills mentioned this morning. The attack on medicine is gradually merging into an attack on the American way of life. It has been our policy to get medicine off the defensive and put men who want socialized medicine on the defensive. We have gone a long way, but it is hard to get down to the man in the street. The socialist program tells him that 'Here is something that you will get for nothing, you are badly treated as it is.' The layman does not realize he won't *get* what he has been promised, and that he will pay *more* for it. The price is continually going up. Soon he will pay the *rest* of the tax, to a large extent by increased costs of things which will be occasioned by the inevitable inflation that would come. Finally, if the man in the street knew it, he is *already* paying from 20-25% of what would be his take-home pay in hidden taxes. You must go to the man in the street and work from there.

"Freedom and easy living are not synonomous. They have not been since our Colonial days. If we accept the present trend, you have for the moment easy living, but no freedom. This tendency to accept government largesse without increased work means a progressive loss of liberty, and a start down the road which inevitably leads to communism. No patriotic American wants communism. Political strategy, therefore, is to raise the bugaboo of communism in order to distract attention from other things that are going on. This was true in Germany. Communists, who were quite strong in Germany for a time, raised the cry 'look out for Fascism.' Ever since World War I we have had groups who raise the cry in America's government against communism, while the communists here raise the cry against fascism. It is an old political trick.

"In a recent political pronouncement certain government ghost writers offered: (1) 'In the world today we are confronted with the danger that the rising demand for freedom may be betrayed by forces of communism.' (2) 'In its ruthless struggle for power, communism seizes on our imperfections and takes advantage of the delays and set-backs which the Democratic Nations experience in their efforts to provide better government for their people.' This has additional interest for us, and we might paraphrase it by saying that 'in their ruthless struggle for power, socialistic advocates of compulsory sickness insurance have seized on the imperfections of our present medical care and have tried to take advantage of delays and setbacks which the medical profession experiences in its effort to provide better care for the people.'

"What can we do? There *is* something that we can do. First, get to the grass roots. Talking among ourselves does no good unless we can inspire someone to get closer to the grass roots, to the education of the man in the street. A number of organizations are doing just that. This is not just medicine's fight. We have a part in it, but the welfare of our whole country depends on stopping this socialistic tide that is rolling toward us. We have to make the man in the street understand that he will *not* get something for nothing. What he gets under these programs he will *pay* for; and when he gets it it will be inferior to what he now receives at less cost. Another way to combat the trend is by extension of voluntary medical care. We have under way the development of cooperation with various agencies in business and other professions. This is a vast program on which we have made definite progress in the last year but we have much more to do.

"Also, medicine will have to clean up its own back yard. There are conscienceless doctors who persist in overcharging, and in various ways acting in a heartless manner toward the people they should serve. You in Colorado have instituted a very excellent plan to take care of such complaints, and if your plan here and in a few other states which have recently developed similar plans is expanded over the country and prosecuted as it should be, the conscienceless doctor will stop, look, listen and change. Men of that kind cannot stand publicity.

"Finally, the outstanding achievement of this past year has been the development of a unity throughout the profession that never existed be-

fore. That was evident in the Washington meeting last month, and everywhere else. We have increased unity among men of the profession, but we need a *complete* unity."

AFTERNOON SESSION

Organization Motions

Chairman Humphrey re-convened the meeting at 2:40 p. m. Dr. McClendon moved that this type of meeting be permanently established, on call, that similar meetings be stimulated in other regions of the country, and that a liaison committee be established between this area and the other areas. An amendment to this motion stating that representatives from all such sectional meetings meet together to correlate their ideas, was accepted. The amended motion was then seconded and carried. Dr. Brooksher of Arkansas moved that this body annually elect a President and Secretary for one-year terms. The motion was seconded and carried. Dr. Fred A. Humphrey was nominated by several as President for the coming year. There were no other nominations and Dr. Humphrey was elected unanimously. Mr. Sethman nominated Dr. W. R. Brooksher of Arkansas as Secretary. There were no other nominations and Dr. Brooksher was elected unanimously.

Dr. Henry of Arkansas moved that a transcript of this meeting, including its Resolutions, be sent to the Board of Trustees of the A.M.A., the Washington Office, and the Legislative Coordinating Committee, to be in their hands by next Saturday morning. The motion was seconded and carried.

Dr. Henry moved that three additional representatives of this group attend the Chicago legislative meeting next Sunday to support Drs. McCarthy, Blasingame and Murray who are present today. The motion was seconded. In discussion several stated that the doctors named would constitute all the representation needed. Dr. Humphrey called for a vote, and Dr. Henry's motion was lost.

Dr. Henry asked if it were the feeling of this body that the new A.M.A. Legislative Coordinating Committee now assumes responsibility for guiding the medical profession in national legislation. Discussion followed by Drs. McClendon, McCarthy, Irons, and others concerning the function of the new Committee, established by a recent resolution of the A.M.A. House of Delegates, and the relationships between that Committee, the A.M.A. Board of Trustees, and the presumably still existing Legislative Committee of the Board of Trustees. No one present felt certain, but it was the consensus of those who served in the A.M.A. House of Delegates that the new committee was intended eventually to supersede the Legislative Committee of the Board of Trustees. There was a consensus of hope that the A.M.A. Board of Trustees will quickly resolve this confusion by a clear statement to all State Societies.

The "Voluntary" Bills: S. 1456, S. 1970, etc.

The "Voluntary" bills were presented by Dr. James E. Buckley of Oregon. The first bill discussed was S-1456, known as the "Voluntary Health Insurance Act." Dr. Buckley stated that all legislators are looking for something they can get their name on that will be satisfactory to the A.M.A. and the rank and file of the profession and hospital associations. Medicine has been advocating the development of voluntary health insurance plans as a positive program. We know the defects inherent in it but believe it is the best answer to catastrophic illness. A great deal has been learned on how voluntary plans work at state level, and how impossible it would be to have a plan work satisfactorily at national level. The indigent man can be taken care of more easily at state or county level. The Washington State Medical Society has been successful in handling it at state level. Determination of pay for insurance premiums nationally would entail a horde of bureaucratic individuals to carry out the program. It would soon break down into a complete coverage of that group, and you would have a compulsory program. Diagnostic clinics are not described in the bill but it is assumed that there would be something of this type, and where the diagnostic clinic would leave off and where treatment would begin is impossible to work out. All the voluntary bills contain features which are uncontrollable. One of the fundamentals that has been touched only lightly, but which is one of the most solid arguments we can use, is this crushing federal budget. For people at Federal level to be taking the attitude that they have responsibility for supporting solvent State Governments is no sound. There would be a tremendous increase in expenditure not only from Federal setup in Washington, but a tremendously increased complexity of State Administration which is

necessary in order to qualify for acceptance of Federal money.

Dr. Buckley then discussed a bill that Senator Hunt plans to introduce, which has many features of other bills but also includes a "deductible" feature. It consists of selling a so-called voluntary policy to individual families, not compulsory, but to be sold at a lower premium than present plans. Under this plan it is obvious that Blue Cross and Blue Shield would fade from the picture. There would be a tremendous Federal Subsidy in this system also, to cover the overhead expenses. The individual would pay only a portion and the balance would be subsidized by the government. This way the government would still exercise control.

Mr. Graham asked Dr. Buckley if Senator Hunt will definitely introduce this bill. Dr. Buckley stated that it had been discussed within the last week and the Senator intends to get it out very shortly. Senator Hunt has stated that he had the support of a good many organizations on this bill.

Dr. Hemington of Nevada discussed a recent Nevada meeting with representatives of insurance companies who indicated an interest in a plan whereby most of the carriers in the country would offer fairly uniform health insurance policies. The policies would hardly be distinguishable except for the names of them, and premium prices would depend on the actuarial experience of each company. Dr. Hemington thought something like that backed by large insurance companies on a voluntary basis would help solve our problem. He suggested that other states might investigate this plan and get large insurance companies interested.

Dr. McCarthy brought up another point about Senator Hunt's proposed bill which calls for a "professional man" to head the federal medical department, which Representative Miller's bill calls for an M.D. as the cabinet member. We should look out for this, because "professional" could cover anything. Dr. Buckley concluded by saying that we are encouraging commercial carriers to enter this field. If we are going to stand for free enterprise we have no course except to give these people cooperation in maintaining free enterprise in the insurance business. Although early costs are high, public acceptance of the plan cuts down the cost.

Dr. Buckley then read a resolution which he asked the Conference to adopt in opposing these pseudo-voluntary legislative bills. A motion was made that the resolution be adopted as read and this resolution is attached hereto as Resolution "4."

Name of Conference

Dr. McCarthy moved and Dr. Peck seconded that this conference be known as the "Western States Medical Conference." The motion was carried.

Mr. Graham suggested that Medicine, now asking help from other groups, would do well to give some cooperation to other groups; for instance the Farm Bureau Federation would no doubt appreciate assistance against the Brannan Plan. He suggested that perhaps the new A.M.A. Coordinating Committee might take the offensive, and draw up a bill to be introduced in Congress which would say that the Collectors of Internal Revenue at the State Level must set aside a certain percentage of Federal Income Taxes collected in the state, and deposit the funds in the State Treasury to be in turn used for appropriate purposes needed by state agencies. Then we would not get back a watered dollar. If such a bill could be introduced it would place the Washington bureaucrat on the defensive, trying to explain why he wants the dollar to come to Washington.

Mr. Graham then asked, when will we know, and how will we know, what states will be asked to go to Washington either to contact Senators on the Committees or to give testimony against these bills. Mr. Sethman stated that Dr. Lull had said by telephone that three witnesses would appear for the A.M.A. against HR 6000 and he was asking each State which had a senator on the Senate Finance Committee to send a witness. He asked Colorado especially to send a witness, emphasizing the unusual situation in that both Colorado senators are on that committee.

Nursing Situation

Mr. James Baley, Marshall, North Carolina, Attorney, National Organization of Hospital Schools of Nursing, stated that the program of arousing public sentiment which Dr. Davis and he had started in North Carolina and the Southeast had become quite expensive and more than a one-man drive. He stated the need for an organized effort, and stated that he and Dr. Davis

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together with friends in Florida, Mississippi, Arkansas, Georgia and North Carolina had met in Atlanta and formed the "National Organization of Hospital Schools of Nursing, Inc.," to deal with the nursing portion of S. 1453. This group was incorporated as a non-profit organization, similar to the American Association of College Schools of Nursing. The organization opposes the recommendations of the Brown report, opposes the abolition of reputable and established hospital schools of nursing, believes there is still a need for the three-year graduate nurse, and proposes that accreditation of schools be left to the State Boards of Examiners. It opposes Federal aid to hospital schools if there is any government control. Mr. Baley stated that it was difficult to get beneficiaries of funds to oppose the obtaining of those funds, but that they have secured such a nucleus among schools that would be abolished. The by-laws are similar to those of other organizations. They have established a council of standards for active nursing schools, in order that there will be no relaxing of the standards of nursing schools. Mr. Baley stated that the work so far was largely promotional. Public relations work had to be done immediately; they have sent out large quantities of literature. The group now needs the help of the medical profession, and wants to be national in influence and in scope as well as in name. He asked members of the Conference to talk to hospital administrators and secure their membership in the new organization. It cannot continue on the present scale unless it had additional funds from some source. $10,000 is needed now. S. 1453 will be up for vote within three or four weeks at the most. The new group also seeks cooperation of the legislative committee of the A.M.A.

Dr. Buckley stated that the Oregon Medical Society had made a substantial contribution, that Texas had sent in a contribution, and that Arkansas people had also raised funds. He felt that this organization did need definite support. In his opinion it was a sound investment for any Society or individual.

Dr. Lipscomb of Denver stated that here was an opportunity to work together as a unit instead of trying to fight separately; we must work together to show strength as one unit, whereas as individuals we show weakness. Dr. Buckley moved that this Conference go on record in appreciation of the work done by Dr. James W. Davis and his associates in the fight against S. 1453 and other compulsion bills as demonstrated in the organization of the National Association of Hospital Schools of Nursing, Inc., and that the Conference commends favorable support of this group. This motion was seconded and carried.

Mr. Sethman announced that the Colorado State Medical Society would digest the minutes of this meeting and have a mimeographed copy mailed, one copy to everyone attending, to everyone invited who could not attend, and extra copies to state secretaries and journal editors and the A.M.A. Board of Trustees. Mr. Sethman read letters and telegrams from those who had been invited and who had sent regrets. A motion was made and passed that a telegram be sent to Dr. Elmer Henderson expressing its regret of his absence and wishing him a speedy convalescence.

The meeting adjourned at 4:15 p. m.

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MRS. JOHN R. GREEN

Mrs. John R. Green was born in North Dakota, but grew up in Tacoma, Washington. She attended Northampton School for Girls in Northampton, Massachusetts, and received her B. A. degree from DePauw University, Greencastle, Indiana.

She married Dr. John Raymond Green in 1941, and lived in Chicago while he completed his training. Dr. Green spent several years in the Navy and came to Phoenix in 1947.

Mrs. Green is Maricopa County Medical Auxiliary Publicity Chairman. She served on telephone committee last year.

She served as Alpha Phi Alumnae President last year and this year; is a member of the Delphian Society, and of the Symphony Guild Hospitality Committee. She participated in Red Cross, Community Chest and St. Joseph's Hospital drives.



MRS. JOSEPH M. KINKADE
State Health Chairman

Mrs. Joseph M. Kinkade.

Colonia Solona, Tucson, Ariz.

Graduate University of Iowa, Iowa City.

Alpha Delta Pi, Mortar Board, Phi Beta Kappa.

Assistant to Dean of Women at University of Iowa.

Past Province President of Alpha Delta Pi.

Married to Dr. Joseph M. Kinkade.

Three children, Jack 12, Dick 11, and Susan 7.

Active in Chapter J, P.E.O., League of Women Voters and P.T.A. in Mansfield and Miles Schools.

First Vice President and Membership Chairman of Pima County Medical Auxiliary.

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MRS. R. LEE FOSTER

Mrs. R. Lee Foster is chairman of the Finance Committee of the Arizona State Medical Auxiliary. She is a native of Arizona and received her A. B. and M. A. degrees from Stanford University.

In 1933 she married Dr. R. Lee Foster and they lived in California until 1941 when they came to Phoenix to make their home, where Dr. Foster specializes in Radiology. They have four children, three girls and a boy.

Mrs. Foster is on the Board of Directors for the Arizona Tuberculosis and Health Association and the Board for the School Lunch program in Phoenix. She has been active in the PTA and AAUW and is President of the Women's work of the First Baptist Church of Phoenix.

PIMA COUNTY MEDICAL AUXILIARY NEWS

Members of the Pima County Medical Auxiliary met Tuesday evening at the Santa Rita Hotel for a business meeting which was followed by a style show presented by Lota Fletcher and La Verne, who have recently opened a new dress shop at 27 West Alameda Street.

Mrs. Max Costin, Chairman of the Blood Donor Recruitment Program, reported that the following members donated a pint of blood to the American Red Cross Blood Bank: Mmes. H. D. Cogswell, Harold Kohl, L. D. Sprague. O. J. Farness, Redford Wilson and Max Costin. Several members will report at a later date. Mrs. Louis Hirsch, Mrs. James Barger and Mrs. J. L. Whitehill assisted Mrs. Costin in securing donors.

Mrs. Wilkins Manning discussed the Bureau of Legislative Information which has been organized to coordinate the efforts of all women's groups in endorsing good legislation. Mrs. Louis Hirsch represents the auxiliary on the steering committee of the Bureau.

Dr. John Stacey spoke briefly and enlisted the aid of the Medical Auxiliary to assist him in contacting all Pima County doctors and their office personnel for donations in the coming Red Cross Drive.

The Pima County Medical Auxiliary adopted a resolution opposing compulsory health insurance.

Refreshments were served following the meeting. Hostesses for the evening were: Mmes. F. J. Lesemann, Chairman; M. A. Carreras, John S. Mikell, George Boone, J. M. Sickler, Samuel Grauman, Richard Hausmann, Vernon L. Mahoney, Jackman Pyre, Henry Limbacher, Joseph Gertner, James A. Sutton and B. W. Saylor.

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GILA COUNTY MEDICAL SOCIETY

Meeting of January 4, 1950, at Cobre Valle Country Club.

Dr. A. J. Bosse, Presiding.

Roll Call—Present: Gerlich, Wheeler, Cron, Harper, O'Brien, Brayton, Bosse, Jacobs, Bishop.

Absent: Huestis, Gunter, Harris, Lambrecht, Collopy.

Minutes of the preceding meeting were read and adopted.

No business arising out of the minutes.

Secretary stated that all communications were attended to.

No reports from committees except health committee, of which Dr. Harper stated that no meeting had been held but that we should acquaint the public with our problems.

New business: Dr. Brayton said that Dr. Aarni, former President, had moved to Phoenix and that his request for a letter of transferral had been promptly attended to. The society expressed its regret at losing Dr. Aarni as a member.

The possibility of Dr. John E. Bacon becoming a member of the "50" year club was discussed. Dr. Brayton, who presented the matter to the society, suggested that Dr. Bacon be contacted to find out his wishes. Dr. Harper seconded the suggestion and Dr. Cron volunteered to see Dr. Bacon on his forthcoming trip to California. Matter was placed in Dr. Cron's hands.

Dr. Marshall E. Burgess, who has returned to the district to practice, expressed his desire to re-establish his membership in the society. The society voted its approval—also on motion of Dr. O'Brien, seconded by Dr. Brayton and duly carried, he was elected to continue as censor the year 1950.

The society passed a motion that any member of the Arizona Medical Association fifty year club should have his dues remitted as occurs with the State Medical Association.

The Secretary stated that the Gila County Medical Society fifty year plaque was missing and not in his possession. Dr. Cron stated that it was at the M-I Hospital.

Dr. Brayton suggested that the society purchase a filing cabinet for society records as these valuable documents might become lost; he suggested that the Gila County Hospital be asked to allot storage space for them.

Membership then proceeded to matter of nominating and electing officers for the year 1950.

For President, Dr. Brayton nominated Dr. Gerlich; Dr. Gerlich nominated Dr. Wheeler; Dr. O'Brien nominated Dr. Harper.

Dr. Gerlich withdrew in favor of Dr. Wheeler.

Dr. Harper withdrew and Dr. Norman O. Wheeler was declared elected.

For Vice President Dr. Gerlich was nominated and elected.

For Secretary Dr. Cron was nominated and elected.

Dr. Cron moved and seconded that the society render Dr. Brayton a vote of thanks for his many years of faithful service—sixteen years as secretary of the Gila County Medical Society. Motion unanimously carried. Doctor Brayton expressed his thanks and pleasure at having had the privilege of serving the society.

For Censor, term expiring Dec. 31, 1952: Dr. William E. Bishop. (other censors Dr. Gunter's term expires Dec. 31, 1950; Dr. Burgess' term expires Dec. 31, 1951.)

For delegates to the State Medical Meeting to be held in Phoenix in 1950, Dr. Norman O. Wheeler and Dr. Nelson D. Brayton were nominated and elected.

The treasurer's report was then submitted by the secretary-treasurer and on motion of the secretary, seconded by Dr. Cron, was adopted. Report is attached.

Meeting adjourned.

Nelson D. Brayton.

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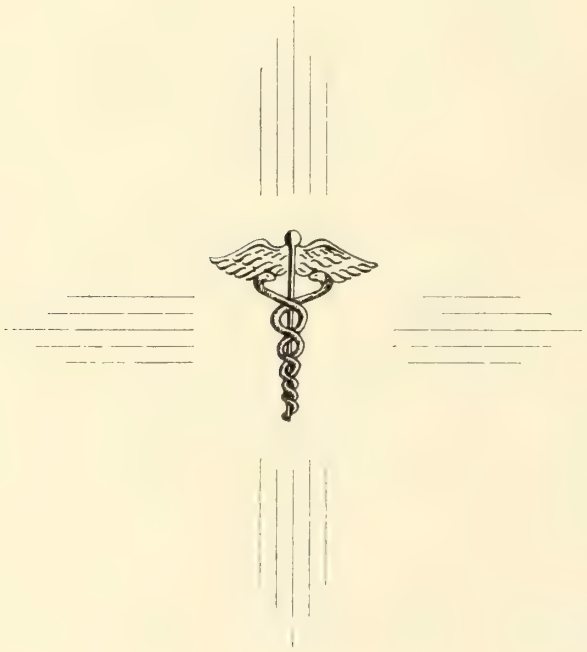
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THE ANNUAL MEETING

The Fifty-ninth Annual Meeting of the Arizona Medical Association will be held at the Westward Ho Hotel in Phoenix on April 30-May 1, 2 and 3.

The Program has been completed. Guest speakers will be Doctors John M. Waugh of Rochester, Minnesota; Stephen R. Elek of Los Angeles, California; Harry B. Macey of Temple, Texas, and George C. Griffith of Pasadena, California.

In addition to the guest speakers approximately fifteen papers will be presented by members of the State Association.

Following the new arrangement which was started last year, the Meeting will begin on Sunday, April 30. There will be entertainment and golf Sunday afternoon. The Council will hold its first session Sunday afternoon.

The House of Delegates will meet Monday morning and Wednesday morning. Monday afternoon will be given over to the various specialties for sectional meetings. The Opening Exercises and the first scientific meeting will be held on Monday night. The President's Dinner-Dance will be on Tuesday evening.

On Sunday evening the Annual Meeting of the Blue Shield Corporation will be held at the Westward Ho. The Corporation consists of the members of the Council, the House of Delegates, the Board of Directors and officers of Blue Shield.

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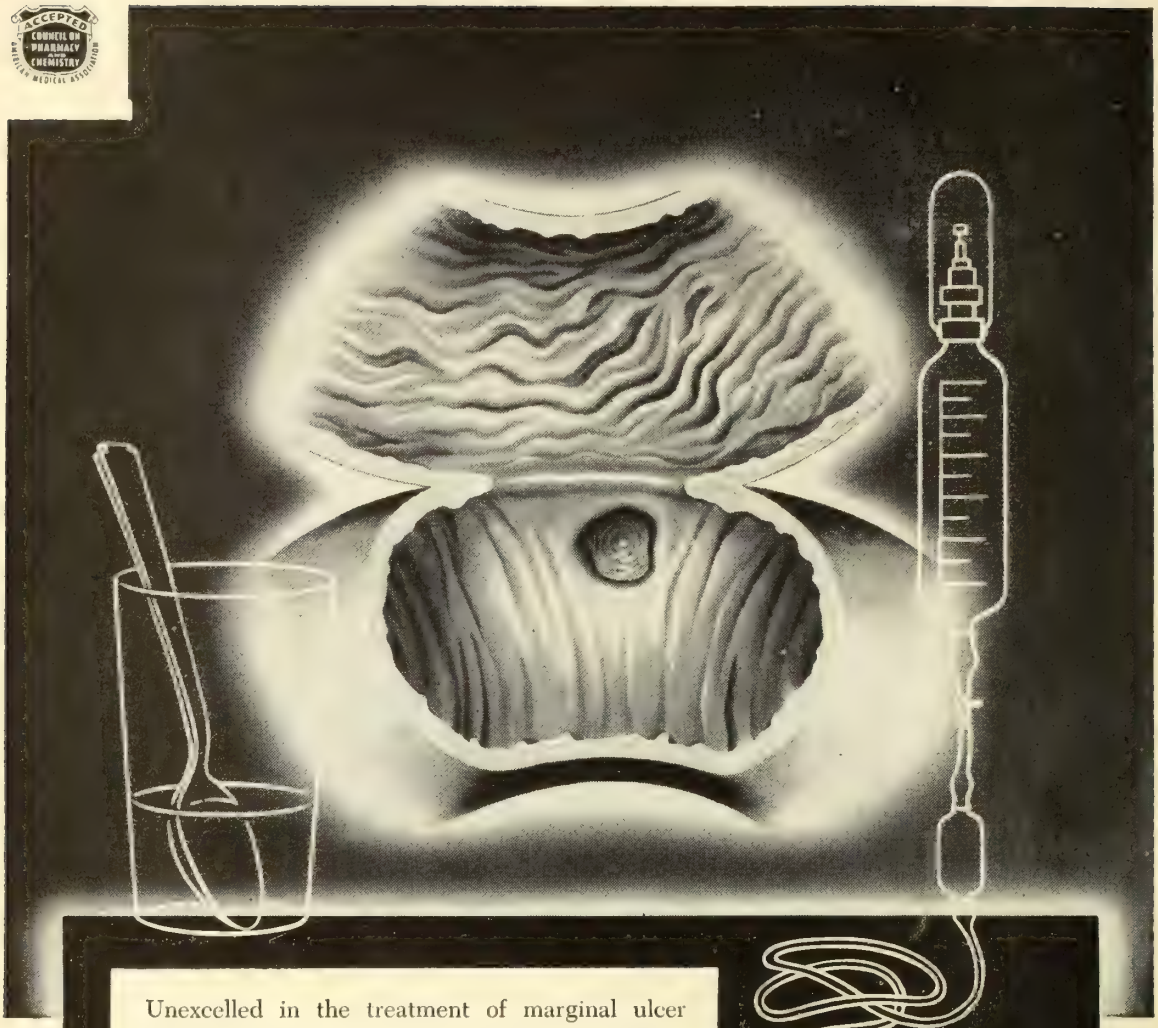
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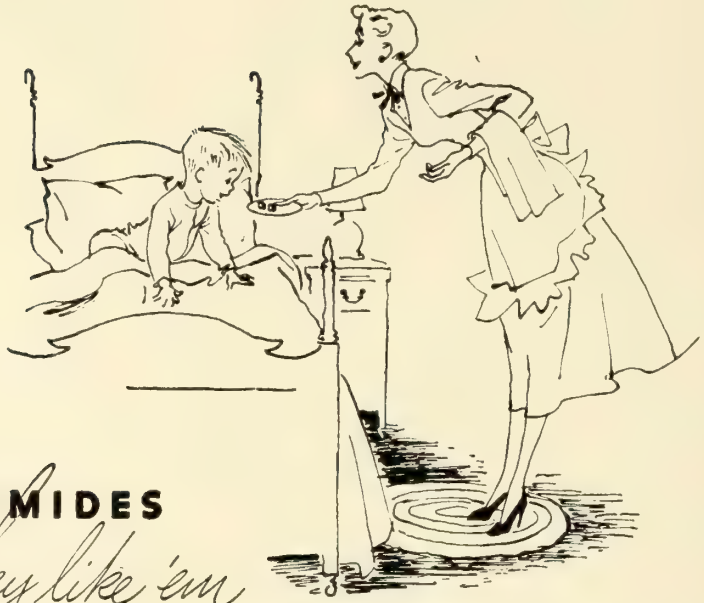
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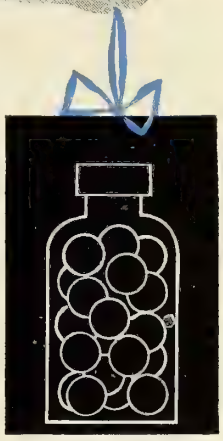
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(1) Lyon, R. A.: Am. J. Obst. & Gynec. *47*: 532, 1944. (2) Groper, M. J., and Biskind, G. R.: J. Clin. Endocrinol. *2*:703, 1942. (3) Wiesbader, H., and Filler, W.: Am. J. Obst. & Gynec. *51*:75, 1946.

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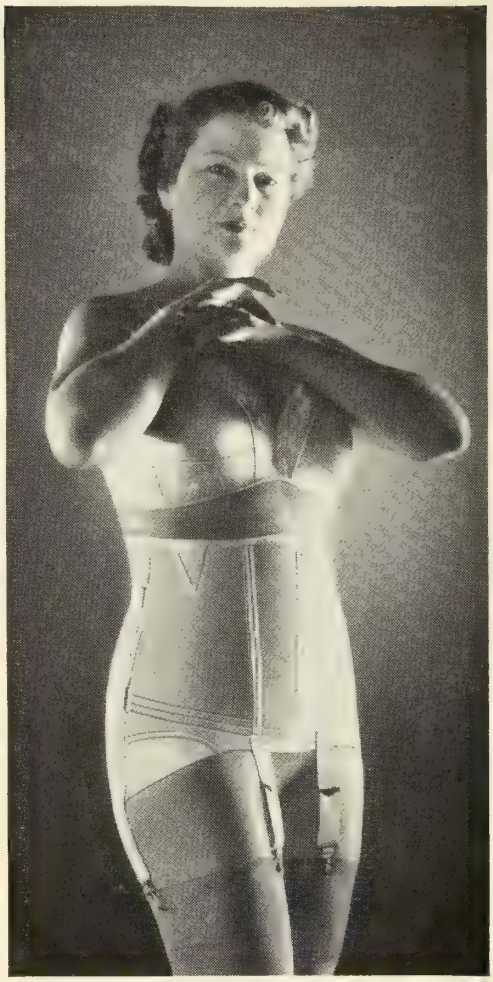
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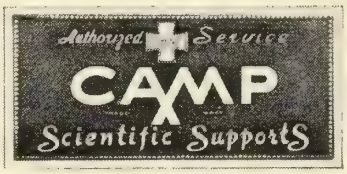
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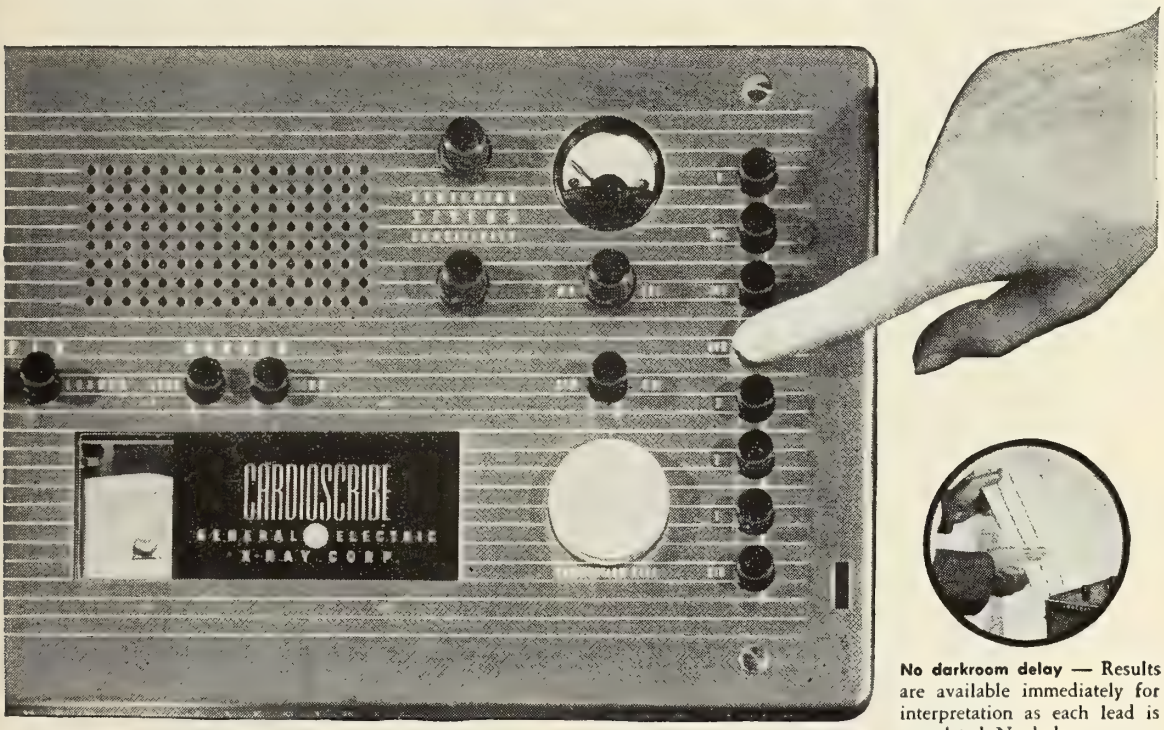
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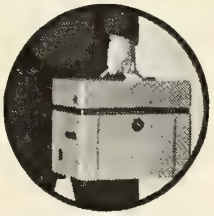
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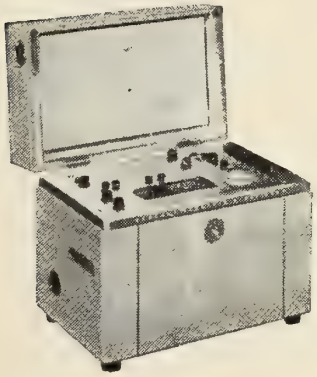


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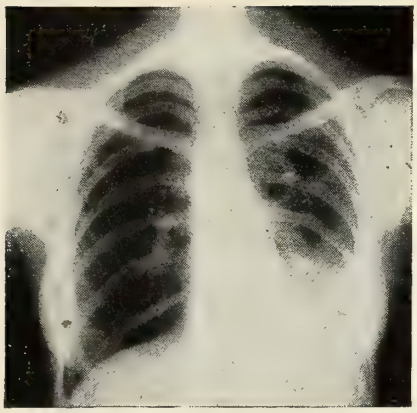
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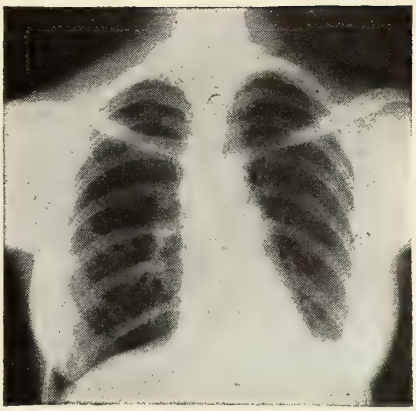
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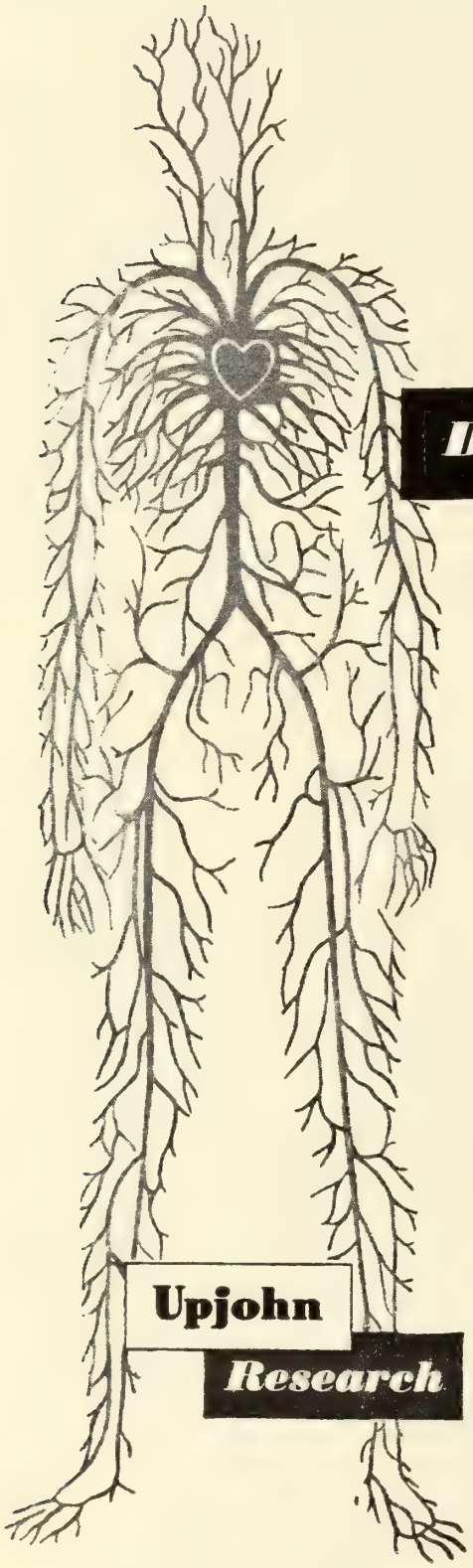
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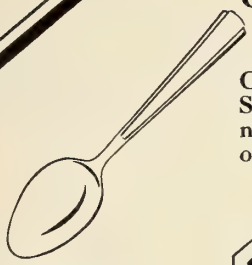
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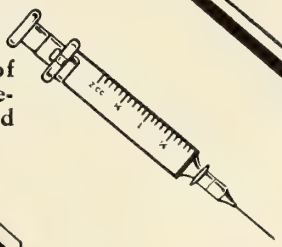
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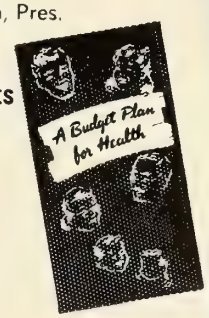
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THE MOST NEGLECTED ASPECT OF CHEMOTHERAPY

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THERE are two chief approaches to chemotherapeutic problems, the first and most spectacular of which is exemplified by the use of penicillin, the sulfa drugs, and streptomycin. The second, and indirect approach, viz., the stimulation of the natural defensive powers of man's body, is of much greater importance than has been realized, because it conditions somewhat the success of these antibiotic drugs. It is the purpose of this address to focus attention on these so-called "host factors," and their possibilities in modern chemotherapy.

In streptococcal infections, our own experiences with this aspect of the problem really antedated our experience with the sulfa drugs. We had prepared an antistreptococcal serum, the objective of which was to deprive hemolytic streptococci of their virulence, rather than to kill them; for it was already well understood that adequate natural resistance forces of the human host were quite capable of eradicating many subacute streptococcal infections which otherwise were eventually fatal. Of a series of 125 cases of this sort, more than 90% of them recovered with the use of this serum. Among the latter were six cases of infantile erysipelas. All recovered, when usually the outcome is quite the opposite.[1]

However, it soon became clear that the results were not achieved as the result of specific antibodies contained in the serum and for the following reasons. In the first place, the doses with which we obtained maximal effects were very small—averaging from 0.01 c.c. to 0.1 or 0.2 c.c. In the second place, the action of a specific antibody could not explain the healing of varicose ulcers of long standing which had become infected with an erysipeloid type of hemolytic streptococcus. Finally, the clinical responses of the patient were not those that could easily be attributed to an antiserum. The latter included a leucocyte rise, as well as an increase in blood calcium and blood phosphate, and sometimes in the chlorides. In addition, there was also a marked fluid shift from the water-logged tissues back into the vessels, thus causing a disappearance of the general and local edema associated with severe infections. These phenomena as a whole savor somewhat of a "de-sensitizing" or an "anti-shock" effect, a consideration that I shall amplify presently.

That the clinical responses to the serum were not strictly specific may be inferred from similar results that many years before were obtained in erysipelatous inflammations by the use of ultra-violet and X-radiation. Furthermore, favorable clinical results have been elicited from hyperthermia and from the use of nonspecific protein, particularly when these agents are not employed in too large doses. Thus, two or three decades ago we heard a great deal about protein shock therapy, the histamine-like shock usually resulting from too large a dose of the foreign protein, or as the result of its introduction directly into the blood stream. These extreme measures are largely responsible for obscuring the undoubted clinical value associated with the small, desensitizing dose, which presumably is anti-shocking in its effect.

As to the biochemical implications of the action of foreign protein parenterally introduced,

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all too little is known. However, during the last decade, a number of studies from rather diverse angles is shedding considerable light on some of the mechanisms presumably involved. During the war period, the French physiologist Ungar[2], working at the University of Oxford in England, was able to demonstrate a remarkable phenomena in animals. When the latter were subjected to measured doses of trauma which were sublethal, the animals developed counter-shocking substances in their serum. Resistance against the killing effects of traumatic shock could be passively transferred to a second animal as the result of injection of the serum from the first animal which had received sublethal doses of trauma. In other words, the serum of the first animal contained a counter-shocking substance.

This effect was eventually traced to the elaboration by the spleen of a hormone-like substance which the author calls splenin. Breakdown products of protein liberated as the result of trauma are believed to act first through the pituitary, which in turn stimulated the adrenal, and finally the spleen. We shall have more to say about this pituitary-adrenal syndrome in connection with the work of Selye.[3]

In 1937, Lassabliere[4] showed that it was possible to develop a considerable degree of resistance against cobra venom by injecting into an animal a whole host of non-specific agents. This study now finds its most plausible explanation in the work of Erwin Haas[5], of Hollywood's Cedars of Lebanon Research Laboratories. He has described a series of anti-invasins, whose function is to neutralize those substances of snake venoms which implement their rapid spreading throughout the tissues. These substances are of the nature of enzymes and are liberated from the spleen most likely. They are entirely distinct from the well-known antibodies which, as we shall see, also may be liberated from the lymphatic structures as the result of small injections of non-specific protein and other substances.

There is also recent evidence that other substances resident in the spleen and brain may be of an antibiotic nature. Thus, Nutini has been able to isolate from these organs substances which are capable of acting in vivo as well as in vitro; such bacteria as the staphylococcus aureus and the hemolytic streptococcus are deprived of their virulence. This is particularly interesting in connection with our own study, to which we have referred above, and whose objective was not directed at killing parasitic bacteria, but rather at changing their phase of growth from one involving virulence to one lacking this attribute. This work of Nutini[6] seems to be a more concrete realization of that aim.

Finally, we have rather formidable experimental evidence that the liberation of antibodies from the lymphatic tissues is not a dream, but very much of a reality. It would appear that, as a result of previous infection or the injection of small doses of specific antigen, antibodies can be stored up in the lymphocytes of the lymph glands, thymus, and spleen, etc. These antibodies can then be liberated in appreciable quantities as the result of a variety of non-specific stimuli. That is to say, if the antibodies were originally stored up against hemolytic streptococci, most any foreign protein is capable of bringing about their liberation into the circulation. Thus is explained a reaction long known to immunologists, which has gone under the name of the "anamnesic response." The word is really the antonym of "amnesia;" that is to say, the cells which were originally stimulated by an infection are said to "remember" the experience, so that on subsequent stimulation they behave as above related.

However, the cell products liberated as the result of stimulation are not of necessity protective in nature. Thus we know that under certain conditions, substances like histamine, adenosine triphosphate, and other rather toxic substances, may also be liberated. Perhaps the most extreme instance of this sort of thing occurs in the condition known as status lymphaticus, where it would appear that non-specific stimuli minimal in amount can result in the liberation of lethal amounts of unknown toxic substances.

All of this brings us to a consideration of what during the last decade has come to be widely known as the "alarm reaction," so named by its discoverer, Hans Selye. He has extended the list of non-specific factors capable of eliciting the effects discussed, well beyond the realm of the foreign protein. Thus, extreme cold, fatigue, emotional crises, deep anesthesia, etc., are among the stresses capable of developing varying degrees of shock. We have already referred to his work briefly in connection with the experiments on traumatic shock by Ungar.

His work suggests that as a result, presumably, of cell substances liberated by mild shock, the pituitary puts out adrenocorticotrophic hormone (ACTH) which results in the stimulation of the adrenals. The cortex of the latter gland then frees certain complex sterols, which are spoken of as adrenal corticoids. They have the general effect of neutralizing the harmful results of the original shock-producing stimuli. This comes about in part by their activation of the spleen to liberate splenin (Ungar). Incidentally, the clinical response is reminiscent of our therapeutic serum that we used so many years ago in treating hemolytic streptococcus infections. That is to say, there is a fluid shift away from the tissues and into the vessels, as indicated in part by copious diuresis and by recession of tissue edema. We may also have an increase of blood sugar, phosphates, chlorides, etc.

One of the most important of the adrenal hormones is cortin. As the result of continuous overdosage of this hormone, Selye claims to be able to produce experimentally such important pathologic conditions as malignant nephrosclerosis, periarteritis nodosa, and certain other conditions whose etiology has been obscure. It must be said that before this aspect of his work is accepted, it must be confirmed, and so far as I am aware, this has not yet been done. In any case, Selye also claims that when large amounts of cortin are given, the animal becomes more sensitive to sodium chloride. However, it can be counteracted to a considerable extent by the administration of ammonium chloride in the diet. Otherwise, the animal is likely to die prematurely.

This lowering of the threshold to sodium chloride experimentally is reminiscent of at least two situations in clinical medicine where the same situation obtains. The most important of these, of course, deals with a certain form of hypertension, and the other is involved with the edemas of allergy. The presumption has been that the sodium-potassium ratio of the tissues is altered in favor of an increase in the sodium ion, which helps to explain the fluid shift from the vessels into the tissues, thus accounting in part for the edema. In fact, this theory has been made the basis of certain diets that provide considerable increase in potassium salts.

Interesting in these connections is the dietary approach of Coca[7] in connection with nonreaginic allergy. Coca's chief criterion for this sort of allergic response is tachycardia, and it is interesting that this symptom is also of importance in the initial shock phase of Selye. His alarm reaction also includes such severe manifestations as hemorrhages, gastric ulcers, etc., and it is worth noting, perhaps, that Coca has related to the author cases of gastric ulcer which have been promptly cured as the result of restricting from the diet the offending allergen . He believes, too, that glaucoma represents the same sort of response, and has observed favorable results in the treatment of this disease.

Finally, these considerations are reminiscent of the now obsolescent A. C. S. serum of Bogomolets.[8] His form of treatment has received wide publicity, particularly in lay journals, and is regarded as an important measure in longevity, and is also reported by the Russian school as being useful in cancer, arthritis, and many infections.

So far as infections alone are concerned, it is to be noted that the size of the dose employed is definitely comparable to the ones that we used in the early 1930's in connection with the treatment of hemolytic streptococcus infections mentioned above. The general principle followed was one that kept the size of the dose considerably under the toxic or shock threshold. There was considerable relativity about its application, inasmuch as the varying susceptibilities of individuals to horse serum is well known to govern the degree of response. In any case, it is clear that doses above the toxic level give the impression of elaborating the cellular products where the toxic components are in excess of the protective substances. By the same token, the resistance to the infection appears seriously lowered.

One of the chief points that remains to be settled in regard to the efficacy of Bogomolets's serum is the question of its specificity. While in our own experiments, we started out by using an antistreptococcal serum, in order to control the non-specific factor, we also employed antidiphtheria serum, and certain other antisera. However, it eventuated that the diphtheria serum was used for the most part, and as far as we were able to tell, it was quite as effective as the anti-streptococcus serum itself. Therefore, we could only conclude that we were dealing with a non-specific serum effect which obtained its

results presumably by liberating antibacterial substances from the tissues.

We have already mentioned the occasional case of the simultaneous healing of varicose ulcers when they happened to have been infected with hemolytic streptococci which induced an acute erysipeloid about the lesion. This aspect of the situation was never followed up experimentally, although considerable attention has been devoted to the fracture-healing effects of the A. C. S. serum in this connection at the Cedars of Lebanon Hospital in Los Angeles.[9] The experimental results were definitely in favor of a decrease in the healing time of experimentally-produced fractures, and I am informed that this work has been extended with considerable clinical success in several centers. In view of our best knowledge today, it seems quite unlikely that any favorable results coming from the Russian serum are in any true sense serum specific.

Earlier in this discussion, I referred to the possibility that the therapeutic effect of the small doses of horse serum employed by us might be related to their "desensitizing effect," even though the latter is admittedly quite incomplete. It is a fact that the majority of the hemolytic streptococcal cases treated by us exhibited varying degrees of sensitivity to horse serum. It was also evident in many of the severely infected cases that, following administration of the serum, the highly virulent phase of the streptococcus was supplanted at least in part, by a growth-phase in which virulence was either deficient or absent.

In these connections, it is now desirable to refer to the work of Castaneda[10] in undulant fever. He finds that while the modern antibiotics effective against Gram-negative infections, will eliminate B. abortus from the patient's blood stream, they will not effect a permanent cure. This he believes is related to the fact that an allergy to the bacterium exists. The latter is clearly detectable by the skin test.

Accordingly, he prepared from the filtrates of B. abortus, a protein-free, polysaccharide-free remnant, by injection of which he was able to bring about a negative skin test in these patients. When the appropriate antibiotic was administered following their desensitization, the cure proved to be permanent in most instances.

In the absence of desensitization, he was able to demonstrate that in the macrophage cells of the tissues, the dregs of the infection persisted, even though the actively multiplying forms of the parasite had been eliminated from the blood stream. But apparently the bacterium led a hibernating existence in these large cells of the host, because, instead of the normal-sized B. abortus, the bacterium existed in very minute virus-like forms indistinguishable from the Rickettsia that cause typhus fever. It seems likely that these structures represent a dormant phase of the bacillus which is resistant to the antibiotic and which are later capable of reverting to its actively multiplying phase. These facts furnish a plausible explanation for the recrudescences of the disease in desensitized patients.

There is a substantial amount of evidence indicating a direct connection between the allergic state and deficiency of oxidation; and in turn, a connection between the latter and vulnerability to infection. Thus, we have the well-known example of an ordinarily avirulent organism, the streptococcus viridans, invading the tissues of the bronchial asthmatic and to such an extent that they eventually cripple the patient's lungs.

With this consideration in mind, it is pertinent to recall that the virus-like phases of a goodly number of bacteria require at least semi-anaerobic conditions for their propagation. Dienes[11] of Boston has demonstrated this to be the case with the pleuro-pneumonia group of organisms, as well as for such common bacteria as B. coli and B. proteus.

It is therefore not unlikely that when Castaneda desensitized his undulant fever patients, the oxidative capacities of their tissues are restored to normal to such an extent that the infecting B. abortus is no longer able to go through the hibernating phase that Dienes has shown is often resistant to an antibiotic that readily disposes of the actively multiplying or normal phase, so-called.

In this event, the cardinal importance of host resistance in chronic infections associated with a specific allergy to the infecting organism, becomes obvious. It may well be that until the practical importance of this consideration finds tangible recognition, we are doomed to fall short in our efforts to conquer such diseases as tuberculosis, bacterial endocarditis, certain fungoid infections as the strepthricoses, and others.

In any case, it is of more than passing interest that the work of Castaneda is the first clear-cut

demonstration of our working hypothesis that seemed operative in the cure of acute and subacute streptococcoses with which we were concerned so many years ago. The fact that our desensitization techniques were at best only partial did not permit of us drawing conclusions with the degree of certainty that is possible in Castaneda's work. Indeed, it has not been possible to desensitize permanently or completely against horse-serum sensitivity in man.

Lacking this, it seems increasingly impossible to neutralize one of the most injurious end-products associated with the allergic response. I refer now to histamine. Indeed, the on-rush in the development of anti-histaminics in the past few years is a difficult one with which to keep pace. And to a certain extent this holds for the clinical results which are being claimed.

There seems no reasonable doubt that at least a dent has been made in the common cold-sinusitis situation, although such claims as have been made recently in the "Reader's Digest" require much more extensive confirmation. When one recalls that the initial effect of the common cold is one of mild shock, as convincingly pointed out years ago by Locke,[12] one is compelled to take antihistaminic claims with a certain seriousness.

Even in tuberculosis, the antihistaminics are being given a trial, and with initial results sufficiently favorable to lend support to our position expressed above in relation to chronic infections whose destructive progress seemed to be paced by the allergic response.

In this connection, one must refer to the dramatic clinical results attendant on the widening sphere of action of the adrenotrophic hormone of the pituitary gland, known as A.C.T.H. At a recent conference[13] held under the auspices of the Armour Laboratories, it was reported that sufferers from asthma and hay fever have undergone a profound abatement of symptoms following administration of A.C.T.H. In asthma, the return to normal breathing has lasted for two to three weeks and after 48-hour treatment at six-hour intervals, hay-fever patients had their attacks halted for the remainder of the season.

It is now pertinent to recall the theory of Selye that the pituitary-adrenal pathway mediates a number of non-specific effects, ranging from non-specific shock effects to those of psychic disturbances. It may well be that the A.C.T.H. hormone released by the pituitary is the immediate chemical agent that initiates the chain of tissue responses that today includes the temporary cure of rheumatoid arthritis, rheumatic heart disease, psoriasis, etc.

It is also of interest to recall that in Selye's work an important experimental gap existed between the shock stimuli and the pituitary gland itself. In other words, he was at a loss to know what biochemical influence transferred the initial effect to the pituitary, there being no satisfactory evidence that this gland was under direct assault.

Possibly illuminating, therefore, are the recent studies of David Hume[14] of the Harvard Medical School. His work indicates that a new hormone from the hypothalamus is necessary for the activation of the pituitary and adrenal glands in their response to stress. If the hypothalamus is injured, the pituitary-adrenal pathway fails to respond; but injections of hypothalamic hormone produced a positive reaction in normal animals, as well as on those with hypothalamic lesions.

If it eventuates that the A.C.T.H. of the pituitary gland is liberated by this new hypothalamic hormone, a most important clarification of the pituitary-adrenal pathway will have been effected. Particularly is this the case in view of the startling physiologic effects of A.C.T.H. and the adrenal hormone, cortisone, in rheumatoid and other pathologic states, such as allergy.[15]

On the other hand, it is important to point out a certain interesting parallelism between the action of A.C.T.H. and horse serum and other foreign proteins. This concerns the size of the dose and the somewhat uncertain responses dependent on it, a consideration to which we have called attention earlier. It may mean that these new hormones represent a large part of the effect arising from the parenteral introduction of foreign protein, the net response in the individual case being a resultant of several variables among which are the degree of sensitivity to the antigen introduced, intactness of the hypothalamic-pituitary pathway, etc.

Such effects may either cancel each other out, up to a point, or they may have a mutually reinforcing action. In any case, it becomes easier to understand why for the most part the action of such a hormone as A.C.T.H. was more likely to be obscured by the conflicting side reactions; and when the latter were in abeyance, the dra-

matic reversal of number of pathologic effects often resulted. Such responses are now clearly reproducible because of our ability to use varying dosages of the new hormones in a relatively pure state.

This is not to say that the manifold responses of the foreign protein reaction have now become an open book. Far from it. Thus, it was almost invariably true in the writer's experience in hemolytic streptococcal infections, that a mild degree of serum sickness heralded the early and complete recovery of the patient. Particularly was this true when this "complication" disguised itself as an arthritis.

Of the hormonal balance implications, we of course know nothing, but we may think of these new hormones as paving the way to a more adequate knowledge of the mechanisms underlying this paradoxical manifestation of host resistance.

There is one final aspect of the latter subject that merits attention, and that is the one dealing with "artificial opsonins." Opsonins per se have always been thought to originate with the animal body exclusively, but the recent work of Nungester[16] permits a modified view. Working with several of the newer detergent compounds of high ammonia content, he found a noteworthy stimulation of the white blood cells and attendant phagocytosis.

Mice were protected against 100,000 fatal doses of pneumonia germs by these substances which, per se, had no bacteriostatic or bactericidal effect on the pneumococci — at least in the concentrations used in the experiments. While the work has not yet been extended to human cases, it represents a most promising departure in the creation of resistance of the host to infections.

SUMMARY

It is becoming clearer that many non-specific influences may result in the liberation of a variety of specific substances into the circulation. Some of these are hormonal and some contribute to an improved glandular balance. The latter appears to result in decreased sensitivity to foreign substances of any sort, and especially to infectious agents. By the same token, an improved glandular balance may tend to inactivate sensitizing effects of non-hormonal cellular products that also are liberated as the result of non-specific stimuli.

Whether foreign protein or other form of stimulus is employed to elicit such response, it is likely to be conditioned by the size of the dose, which should be well below the threshold required to produce even mild symptoms of shock. Naturally, this is in part a function of the patient's sensitivity. Therefore, it may vary considerably, thus providing ample opportunity for clinical judgment based on an intelligent discrimination between the symptoms of the disease per se and those resulting from the treatment.

It is of special interest that, despite the diversity of the stimuli evoking the liberation of these protective substances, to a considerable extent they seem to be channeled through a single endocrine pathway. The latter involves hormonal interdependencies between the hypothalamus the pituitary-adrenal, the lymphatic glands, and in all likelihood others not as yet clearly traced into the mechanism.

Inasmuch as our modern chemotherapeutic agents are dominantly bacteriostatic rather than bactericidal, they require the cooperation of specific antibodies, organ-antibiotics, counter-shocking substances, etc., for the final destruction of microorganisms.

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MENSTRUAL IRREGULARITIES

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NORMAL menstruation is not clearly understood. It is a combined vasomotor-hormonal phenomenon that occurs more or less regularly from puberty to menopause except for episodes of pregnancy. Since the normal physiology of menstruation is not understood completely, it becomes difficult to talk about disorders of this function. Our methods of diagnosing, managing, and treating menstrual irregularities and disorders will be given.

The uterus, the pituitary gland, the ovaries, and the thyroid gland, are separate organs that participate in the menstrual function. Disorders of any one of these organs upsets their interrelationships. We also know that abnormalities of the blood such as anemia, leukemia, etc., may enter into the picture. Some[1] have thought that liver derangements or deficiencies may play a part in irregular menstruation. Clinical trial with large doses of vitamin B has not given striking results. The original laboratory work and the original clinical trials were predicated upon the fact that a poorly functioning liver fails to inactivate circulating estrogens; thereby, allowing excess available estrogens to produce irregular and prolonged endometrial bleeding. The facts are that the laboratory animal experiments where this theory was applied were done in such a way as to be dealing with a markedly pathologic liver such as caused by chloroform poisoning; and that very few women with menstrual disorders have any liver pathology.

Presuming a normal anterior gland, normal ovaries, and a normal uterus the follicle stimulating hormone from the pituitary gland stimulates the growth of the primordial follicle into the developing Graffian follicle. The ovary, after this stimulation, produces follicular hormone. Slightly before mid-cycle in the mature woman the lutenizing hormone from the pituitary gland acts upon the follicle, causing it to rupture, to extrude the ovum, and to become a corpus luteum. From this point on, the ovary secretes corpus luteum hormone (progesterone) and estrogen until just before the beginning of menstruation, at which time there is a sudden withdrawal of estrogen and progesterone, followed by menstruation. Thus we have in brief the story of normal menstruation, but many of the intricate fragments of undiscovered knowledge are lacking.

Estrone and estriol are estrogenic substances found in the urine. Estradiol is the substance actually found in the ovary. Estrone and estriol are metabolic products of estradiol.

Our most common type of menstrual irregularity is associated with the anovulatory cycle. Normally, an adult woman ovulates each month until the menopause is approached. Around age 40 ovulation becomes a less regular event.

The anovulatory cycle is characterized by estrogen stimulation without progesterone hormone effects. Progesterone hormone is normally present during the last one-half of the menstrual cycle and is responsible for the secretory endometrium. There is no known estrogen level at which one can predict vaginal bleeding. Information on this score is quite meager. It is known, however, that estrogen does promote endometrial growth, and that its withdrawal will cause endometrial shedding with vaginal bleeding. Endometrial biopsy in cases of anovulatory bleed-

Read October 11. 1949. Pima County Medical Society. Tucson, Arizona.

ing may show endometrial hyperplasia or may show only a proliferative endometrium with microscopic evidences of hemorrhage, or may reveal an atrophic endometrium.

Profuse or prolonged functional bleeding may occur infrequently from a progestational endometrium.[2] Such cases are not easy to treat, and again precise details of etiology are not clear.

DIAGNOSIS

In our own clinic we have been impressed with the inaccuracies encountered in making an office diagnosis of functional or endocrine uterine bleeding. This is so much so that we now will not make a diagnosis of functional bleeding, other than in the very young patient, without the aid of diagnostic curettage accompanied by a pelvic examination under anesthesia. We have found, to our sad experience, that retained products of conception, submucous fibroids, or endometrial polyps have been organic causes for previously supposed functional bleeding. If the endometrial curettage biopsy demonstrates no organic findings we are justified in a diagnosis of functional bleeding. The basal metabolic test, as an aid to diagnosis and treatment in these cases, has been very much of a disappointment. We practically never enlist bioassay of body hormones as an adjunct to diagnosis of functional uterine bleeding. These determinations are expensive, many times unreliable, often misleading, and are unnecessary.

Vaginal cytology methods such as the Shorr stain or Papanicolaou stain, although helpful in the diagnosis and management of other endocrine disturbances, are not helpful in the diagnosis or treatment of functional bleeding. One word further in regard to diagnostic curettage as a weapon in diagnosis: we believe that this procedure should be done during a bleeding phase. The reasons for this are that functional bleeding is a self-limiting disease in many instances and endometrial curettage may be unnecessary if the bleeding has stopped. Secondly, one is able to determine the type of endometrium from which the bleeding originates, and lastly the curettage is not infrequently therapeutic as well as diagnostic since it will stop the bleeding in most cases. In some patients the prolonged or irregular bleeding is controlled from six months to a year to indefinitely by simple endometrial curettage.

To summarize diagnosis, functional bleeding cannot be labeled as such without the aid of endometrial curettage and pelvic examination under anesthesia. In one case we made an office diagnosis of functional bleeding. By following the rule of always curetting before final diagnosis or treatment, we found the diagnosis to be endometrial carcinoma. The symptoms and signs in this 35-year-old woman were not different from functional endometrial bleeding.

One might ask, why not an office endometrial biopsy instead of curettage under anesthesia? We prefer the latter since the pelvic examination under anesthesia often proves informative, and the thorough curettage often proves therapeutic. Blood dyscrasias and anemia must be thought about and ruled out in the differential diagnosis.

TREATMENT

Much of the treatment is empirical, and none is completely satisfactory. As already mentioned, general constitutional physical factors as well as mental factors may enter into the problem. We recognize also that this condition is subject to spontaneous correction. It is no source of amazement that treatments recommended include many of the vitamins, all the hormones ,combinations, and other even more unspecific remedies such as snake venom.

We divide our functional bleeding cases into age groups for treatment. From age 12 to around 18, one can gamble usually, and not do a diagnostic curettage. At this age one is unlikely to be over-looking a pregnancy or tumor. In those with severe bleeding: bed rest, treatment of the anemia, transfusions, and ergotrate all have a place. For hemostasis we use 10 mg. of diethylstilbesterol daily. In two or three days the bleeding will stop. The diethylstilbesterol is gradually withdrawn, giving 5 mgm., then 2 mgm., then 1 mgm., and then none. The adolescent girls are followed with no specific therapy. They are given iron and liver to maintain normal hemoglobin and red blood cell levels. Should bleeding recur, large doses of estrogen may be again applied without harm. This type of bleeding is anovulatory and therefore the endometrium is deprived of progesterone. Continued estrogen stimulation may result in endometrial hyperplasia. In time Nature will intercede with normal ovarian function and correct the condition. It is exceedingly rare that adolescent bleeding cannot be stopped by hormonal methods. Hyster-

ectomy should never be necessary. Infrequently, and after some thought, it may be necessary to do a curettage upon an adolescent functional bleeder for purposes of hemostasis.

There are no responsible groups who recommend radio-therapeutic methods for the control of adolescent functional bleeding. Several years ago, in desperation, gynecologists used to treat recalcitrant cases with small doses of intrauterine radium. Another variation of this theme was externally applied irradiation through the anterior abdominal wall. Experience, usually in the form of disaster, has influenced clinicians to disregards such methods. Dosages calibrated to be large enough to control the bleeding, and small enough to preserve satisfactory ovarian function were found impossible to deliver with any consistency. Sub-sterilizing doses were not infrequently followed by permanent amenorrhea. Cases are being collected in which a small dose of intra-cavitary radium given fifteen to twenty years ago has been followed by endometrial sarcoma.

Irradiation of long bones in adolescent bleeding cases and irradiation of the pituitary gland have been tried. None of these radio-therapeutic methods are advised today.

The next age group under consideration in a discussion such as this is that group which represents the childbearing age. It is in this group that one has to be particularly careful in diagnosing functional bleeding. From age 17 to 18 and upwards, we insist that curettage and pelvic examination under anesthesia be a pre-requisit to diagnosis or therapy. By so doing we find that approximately one-third of our cases diagnosed in the office or in the out patient clinic as functional bleeding cases no longer remain in that class but are actually organic uterine bleeders, due to such conditions as pregnancy, endometritis, pelvic inflammation, ovarian cysts, or a submucous fibroid.

In the management of our functional bleeding patients we have discovered that of the remaining two-thirds that came to us originally as functional uterine bleeders, one-half of these respond to curettage for from six months to a year or more. In other words, we have found that of all patients that we diagnosed as functional uterine bleeding during the childbearing age, one-third were falsely diagnosed, one-third were controlled by curettage, and one-third were left for hormone therapy.

Thyroid hormone therapy has been a disappointment to us in the management of functional bleeding. We have gotten basal rates upon eighty consecutive cases with this complaint. The basal metabolic rate was within normal limits in each instance. We do not use thyroid extract in the treatment of these cases. In our opinion, the enthusiasm for the drug is unwarranted. Spontaneous remissions are not uncommon. Several of our cases have spontaneously adjusted themselves while awaiting hospital admission for curettage.

Estrogen, progesterone, and testosterone are effective in the management of menstrual irregularities. Each preparation has its enthusiastic supporters. As previously stated, we only use hormones in treatment following positive diagnosis established by curettage and pelvic examination under anesthesia, except in the very young.

Our favorite method for the management of functional bleeding that persists after curettage is Hamblen's cyclic estrogen and progesterone treatment.[3] The treatment is started immediately after bleeding ceases. The bleeding can be halted either by large doses of estrogen, 5 to 6 mg. of diethylstilbesterol daily, or by 7.5 mg. of estrone sulfate daily. Each is given orally. Either after curettage or stasis of the bleeding from estrogens, the patient is given 1.25 mg. of estrone sulfate, three times daily for 20 days. The last ten days of this twenty are supplemented with 10 mg. of oral pranone, three times each day. This regime is repeated for three or four months. The patient is given a rest from therapy to see if her own regulatory mechanisms will take over the job of regular menstruation. In this manner, the pituitary gland and ovaries are put at rest and the endometrium is placed under biphasic control for at least three or four months. Many patients stay regulated under this method.

Another method of management that has been recommended by Smith[4] and with which we have had approximately seventy-five per cent success in the treatment of functional bleeding is the estradiol benzoate and progesterone method. Ten mg. of progesterone and 1 mg. of estradiol benzoate is given the 21st day of the cycle, the first day being the first day of flow. From the twenty-second through the twenty-fifth day of the cycle, 10 mg. of intramuscular progesterone is continued. This treatment is continued for

two to three months. In those patients complaining of too frequent bleeding the above regime is started eight days prior to the expected date of flow. In this manner the span between the menstrual bleeding can be widened.

Twenty-five mg. of intramuscular testosterone propionate three times weekly for two weeks, will stop excessive or prolonged vaginal bleeding.[5] Androgen therapy produces endometrial atrophy and halts the bleeding in that manner. No more than 250 mg. of androgen should be given each month. More than this amount may lead to masculinization.

Functional bleeding that occurs in the women of the childbearing age can be controlled by diagnostic and therapeutic curettage, except for about one-third of cases. These need hormone therapy for a few months. One has to be certain that the bleeding is not due to pelvic inflammatory disease. Such a cause for bleeding never is helped by any of the hormonal therapeutic methods outlined here.

In the group of women thirty-eight and over, the so-called pre-menopausal group, we rarely resort to hormone management. Women of this age group deserve a diagnostic and therapeutic curettage even more than those of the childbearing age. Endometrial carcinoma is exceedingly rare under forty. After forty it is always a potential threat. If the first curettage does not bring the functional bleeding complaint under control readily we are likely to try another curettage. If one or two curettages do not relieve the irregular bleeding our next step is usually along the lines of a permanent cure. Here we have three treatments to offer: intracavity radium, external irradiation, or hysterectomy. We prefer abdominal or vaginal hysterectomy in most cases because the ovaries can be preserved. With irradiation one stops the bleeding by permanently blighting the ovaries. If menopausal symptoms appear, the therapeutic relief of such symptoms may re-establish irregular, prolonged or profuse bleeding. Some will take issue with us on the recommendation of hysterectomy in pre-menopausal women who continue to bleed following two or three curettements. Some say that such irregularities can be controlled with the various hormones. Our experience has made us unenthusiastic about hormone control methods in these older women. The number of failures has been too high from the standpoint of patient or physician satisfaction. In the obese woman, the hypertensive patient, or in the patient with systemic disease, hysterectomy seems too great a risk at times In these we may recommend intra-uterine radium. Under anesthesia a curettage is done and 80 mg. of radium screened with the equivalent of 1.5 mm. of platinum is placed in the uterine cavity. The laboratory is asked to render us a 24 hour microscopic report upon the tissue removed. If the diagnosis is that of a benign endometrium the radium is removed at the end of 24 hours. If the pathologist reports endometrial malignancy the radium remains for 4000 mg. hours. Endometrial carcinoma cases are then followed by total hysterectomy and bilateral salpingo-oophorectomy. External irradiation directed toward the ovaries is as effective as radium but it should always be preceded by diagnostic curettage.

SUMMARY

This discussion has outlined our approach to the management of functional or endocrine uterine bleeding. Our experience has taught us that the diagnosis is many times inaccurate if not made after diagnostic curettage and pelvic examination under anesthesia. We have learned also that simple curettage is an exceedingly effective therapeutic instrument. Often the patient is relieved of complaints. The length of the cure varies from several months to indefinitely. Perhaps one-third of functional bleeding patients need to have hormone therapy, but only after curettage, except for the very young. Hormone therapy in the pre-menopausal group is likely to be disappointing. If the curettage has failed to bring about a satisfactory result after two or three trials, we are likely to recommend a permanent procedure such as hysterectomy or irradiation in certain chosen patients.

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MENIERE'S SYNDROME; DISTURBANCE OF VESTIBULAR APPARATUS — A Preliminary Report

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THE term "Meniere's Syndrome" has caused much controversy because in the original description it was believed to be due to a hemorrhage into the labyrinth. This idea has been abandoned by most recent writers.[1]

Since the pathological basis is unknown, the syndrome is classified by its symptom complex. Meniere's syndrome is divided into two phases: the acute phase, in which there is a sudden onset of severe vertigo which may or may not be associated with tinnitus and deafness; and the subacute or chronic phase in which tinnitus and deafness of a mild form are more or less constantly present with dizziness and headache occurring in milder forms at frequent intervals.

Atkinson[2] expresses the belief that Meniere's syndrome is primarily dependent on either increased capillary permeability or vasospasm. Poos[3] in a discussion of vertigo mentions allergy and excessive histamine formation as common causes. Lindsay[4] expresses doubt as to the allergic basis of Meniere's syndrome. He believes the syndrome is a symptom complex characteristic of several separate diseases of the inner ear.

In the acute phase Day[5] recommends surgical destruction of the labyrinth in Meniere's disease resistant to conservative measures. He reports relief of symptoms by this method but warns that the operation usually destroys the hearing on the involved side.

Nelson-Jones[6] points out that at times the attacks of vertigo may be accompanied with general disturbances of the vegetative nervous system, and that a primary gastro-intestinal condition may be simulated. They recommend surgery only after conservative treatment has failed.

SYMPTOMS AND DIAGNOSIS

Vertigo, according to Brain,[7] is "the consciousness of disordered orientation of the body in space." This is the most disturbing symptom of Meniere's syndrome especially in the acute phase where the onset is sudden and may occur any time, even while asleep. The vertigo may last for only a few minutes or persist in a subacute or milder form for days or even weeks. If the symptom complex can be reproduced by the caloric test, it is very suggestive of labyrinthine irritation. However, this is not always true. In a series of cases reported by Crowe[8] 35% showed a normal response to the caloric test, 19% a sub-normal response and 29% failed to react on the affected side. When the labyrinth fails to react, organic disease, such as 8th nerve tumor, should be ruled out before a diagnosis of Meniere's disease is made. Acute and chronic middle ear suppuration may also cause dizziness.

Nystagmus may or may not be present. It is usually noted in the acute phase but its presence in the chronic state is quite variable.

Tinnitus is usually present and greatest on the affected side. It may be limited completely to the affected side.

Deafness, particularly in the acute phase, may be complete on the affected side. In the chronic phase it is limited to the higher tones and, if not relieved, will progress.

Headache is a common finding in the chronic phase. It is usually unilateral. Occipital headache with radiation down back of neck is noted at times .

These symptoms are suggestive of Meniere's syndrome but the diagnosis should be made only after a complete physical examination has rules out any organic process. This is true because knowledge of the pathological process of the syndrome is so inadequate.

TREATMENT

Since the pathology of the process is so indefinite, the treatment varies according to the theories offered to explain the syndrome. In the acute phase surgical destruction of the labyrinth on the affected side is recommended by many authors. In the subacute or chronic phase the conservative medical approach is the treatment of choice. The medical approach varies greatly because there is still no form of medical treatment which has any great claim over the others.

All factors which tend to promote general well-being and good health are of prime importance.

Specific treatments which are current at present are the sodium-free diet of Furstenberg, Lashmet and Lathrop[9]; the histamine treatment of Sheldon and Horton[10]; and the potassium chloride treatment of Talbott and Brown.[11]

Other treatments which have been tried are: benzyl cinnamate by Seal[12]; and vitamin therapy by Atkinson.[13, 14]

It is the author's belief that the syndrome results from a combination of several factors which effect the labyrinth and treatment is designed to overcome the causative factors. These factors are histamine sensitivity, vitamin deficiency, and capillary permeability. They may occur separately or in any combination. A complete examination is done first to rule out any organic condition. This is very important and several rechecks as well as the aid of an internist are essential to eliminate organic disease. At this point the histamine skin test is performed which divides or classifies the causative factors. There are three reactions noted which are of importance.* First, the histamine positive or vasodilator group which respond to histamine desensitization therapy; second, the histamine negative or vasoconstrictor group which respond to vitamin therapy (nicotinic acid); and third, the intermediate group with a large negative or small positive reaction which respond to minimal doses of histamine given orally along with Hesperidin Chalcone Sodium[15] to overcome capillary permeability.

The histamine positive group respond to histamine desensitization. This is accomplished either by the intravenous or subcutaneous injection methods. The intravenous method is more rapid but much more difficult to control because it may aggravate the symptoms if given too rapidly. The commercial solution of 1.1 mgm. of histamine phosphate in 500 c.c. of saline** is used. This solution is given at the rate of 20 drops per minute and stopped immediately if the symptoms are aggravated. Sometimes one bottle of 500 c.c. is sufficient to alleviate an attack; however, it can be repeated on consecutive days until three bottles are taken. It has not been necessary to give more than this amount but some authors have recommended more.

The subcutaneous injection method of desensitization is more practical especially where office space is limited. This method has been just as successful in relieving the symptoms but it is not as rapid. Injections are started with 0.03 c.c. of 0.275 mgm. of histamine diphosphate per c.c. They are given every other day or twice a week depending on circumstances and increased by 0.02 each time. This increase is not made if the patient experienced any untoward reaction from the previous injection. The increase in amount is stopped and maintained at the level where the patient has experienced relief. If the amount given is increased beyond this level, it may cause a recurrence of symptoms. To date 0.5 c.c. of the histamine solution is the highest level required. Most patients experience relief of symptoms between 0.3 c.c. and 0.4 c.c. After this maximum level is reached, the intervals between the injections are lengthened gradually. They are given once a week, then every ten days and stopped if the patient remains comfortable on injections once every two weeks. Many patients experience sufficient relief so that they do not complete this entire treatment plan.

The histamine negative group respond to vitamin therapy. This therapy is limited to the B complex group of vitamins. The patient is given 100 mg. of nicotinic acid (sodium nicotinate 140 mgm. in 10 c.c.) intravenously once weekly and an intramuscular injection of vitamin B complex once weekly. These injections are separated by three or four days. At home the patient takes orally nicotinic acid 50 mg. t.i.d. When the symptoms are completely relieved, the patient is maintained on an oral vitamin B complex at home. The vasodilator effect of the nicotinic acid is the important factor. Nicotinamide, which is more commonly used in other fields, does not have the vasodilator effect of nicotinic acid and does not give the relief desired.

The intermediate group respond to oral doses of histamine and to Hesperidin Chalcone Sodium. It is a known fact that histamine is destroyed by

*The histamine skin test:

An intradermal injection of 0.02 c.c. of histamine acid phosphate (2.75 mgm. in 5 c.c.) is placed on the ventral surface of the forearm. The reaction is read in 10 to 15 minutes. There are three types of reaction to be noted. First, the negative reaction which shows no area of redness or erythema around the area of injection. Second, the slightly positive or large negative reaction in which there is a fairly large area of erythema around the site of injection but no pseudopodia of erythema noted. Third, the positive reaction in which there is a large area of erythema with pseudopodia of erythema present.

Tangential light is more apt to bring out the appearance of pseudopodia as compared to direct light.

**A commercial solution of 1.1 mgm. of histamine phosphate in potassium chloride is also available but this solution caused severe pain in the extremities, particularly that extremity used to give the intravenous solution, so its use was discontinued.

the stomach juices. Therefore, this oral histamine must gain entrance into the body through the lining of the mouth. It is given as sublingual drops. The solution used is histamine diphosphate 2.75 mgm. per c.c. The directions are two drops under the tongue twice daily. After the drops are placed under the tongue, the patient closes the mouth and avoids swallowing or talking for four to five minutes. This gives the medicine a chance to be absorbed through the lining of the mouth. Besides this, the patient is given Hesperidin Chalcone Sodium[15] 50 mg. orally three times daily. Hesperidin Chalcone Sodium is a vitamin P derivative which, according to the literature, will control capillary permeability. The Rumple-Leed test has been of little value is determining the need for this medication.

Since this study of the evaluation of Meniere's disease was started, a new drug has appeared on the market. The name of this drug is "Dramamine."[16] The author has used it in a few cases but has not given it sufficient trial to determine its effectiveness.

SUMMARY

Meniere's syndrome is divided into two phases, the acute phase and the chronic phase. The etiology and pathology of the process are obscure. The chief symptoms are vertigo, nystagmus, tinnitus, deafness and headache. The treatment may be surgical or medical. The conservative medical approach should always be tried first and surgery as a last resort because this requires destruction of the labyrinth on the affected side. Many approaches to treatment have been recommended. They are: the sodium-free diet of Furstenberg, Lashmet and Lathrop; the histamine treatment of Sheldon and Horton; the potassium chloride treatment of Talbott and Brown, and the vitamin treatment of Atkinson.

The author believes that three different factors are responsible for the syndrome. They are vasoconstriction, vasodilation and capillary permeability. These three factors can be separated by interpretation of the histamine skin test. The vasodilator or histamine positive group respond to desensitization with histamine. The vasoconstrictor or histamine negative group respond to nicotinic acid and vitamin B complex. The intermediate or capillary permeability group respond to minimal oral doses of histamine and Hesperidin Chalcone Sodium.[15]

The surgical treatment, destruction of the labyrinth, suggested by Day,[5] is not done by the author. Reference to the literature for this approach is suggested.

CONCLUSIONS

A preliminary report on the causative factors of Meniere's syndrome, their differentiation and a plan of treatment.

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Editorials

To Kind Hearts and Gentle People

The preparation of a medical journal should be a give-and-take venture between the editors and the medical public. It is, but only after a fashion—the editors usually "give" and the subscribers usually "take."

It really should be more mutual. The usual state journal is published chiefly for the edification, needs, and glory of the physicians resident in the area. A considerable amount of work is required to get each issue in shape—and more than a dozen times as much to complete every twelve issues. The editors do not get rich in doing so, and they should be entitled to some help in various ways from their constituents.

One may paraphrase a lyric from Gilbert & Sullivan—"Never! What—Never? Well, hardly ever!"

It should be possible to easily obtain *papers* of different sorts from the nearly six hundred members of the state association, or the other registrants elsewhere. The process, however, is much more like going to the dentist, though not as urgent. Physicians send in papers if they have them available; they rarely respond to heckling or pleading for new compositions.

It should be possible, even more easily, to obtain *case-reports* for "case-analysis," but the man who runs that department tells us that he has had *two* cases submitted in three years (by close friends), but that the request at the beginning of each section, personal appeals to likely prospects by letter on several occasions, and other approaches just short of blackmail have all been unproductive. The cases have had to be dug out of hospital and office and personal files.

It might seem possible that contributions would be sent to that modern, interesting, and usually accurate *column* "Rx, Dx, and DRS." Dr. Osler, however, has considered making mistakes on purpose, since the best (few) comments have been either to augment a published item, or to modify one which seemed incorrect to a reader. All that vast silence, in spite of the fact that it is known that the column *is* read.

Should subscribers use the *editorial columns* to expound, complain, propose, or praise? Apparently not, since very few have mistaken us for "The Times," nor felt an urge to write a letter.

Finally, it would be logical to expect that *news items* about meetings, trips, medical affairs, elections of officers, etcetera, would arrive in a constant shower. No need to compose them; no long hours required. No shower though, even an inconstant one. The modesty and reserve of the Arizona physician is amazing, and we just don't have enough reporters to make up for it.

This summary, almost entirely negative in result, might appear to be a crushing blow to editors. Not so. The situation is a recurring source of mild wonderment, but not a terrible surprise. Editors, in addition to being burners of the midnight oil, are moderately tough and perennially (or permonthly) hopeful.

And say, do you know what? I believe that this column will start people thinking, and in a few weeks we'll have some swell contributions!

Dr. Robert E. Hastings will assume the duties of President of the Arizona Medical Association during the Annual Session April 30-May 3, 1950. Born in Traverse City, Michigan on July 6, 1902, he received his elementary education in Traverse City and Ann Arbor. He was graduated from the University of Michigan Medical School in 1927. After serving an interneship and residency in the University of Michigan Hospital, he opened an office at Elk Rapids, Michigan in 1929 where

he engaged in general practice for five years. From 1934-1936 as a resident in Orthopedics at the University of Michigan Hospital, he was also instructor in Orthopedic Surgery. In 1936, he



ROBERT E. HASTINGS, M. D.

moved with his family to Tucson, where he has been engaged in the practice of Orthopedic Surgery ever since, except for the war years.

In 1928, he was married to Miss Bertha Anderson. They have one child, a son, Robert E., Jr., who is a premedical student at his father's alma mater. The family home is at 2521 East Helen Street, Tucson, and the Doctor's offices are at 1811 East Speedway.

Dr. Hastings is certified by the American Board of Orthopedic Surgery; member of the American Academy of Orthopedics, Fellow of the American College of Surgeons, member of the Western Orthopedic Society and of the Southwestern Surgical Society. He is also State Consultant in Orthopedics for the U. S. Veteran's Administration.

During World War II, he entered the military service in the U. S. Army Medical Corps in 1942 and was attached to the air force. He served as Chief of Orthopedics, Regional Hospital, Santa Ana, California, and later as Chief of Surgical Service and Orthopedics, Regional Hospital, Maxwell Field. Alabama. In December 1945, he was separated from the Armed Services in the grade of Lt. Colonel.

Dr. Hastings takes over the office of President with considerable experience in organized medicine. He has served as President of Grand Traverse County (Michigan) Medical Society, Pima County (Arizona) Medical Society, and two years as Vice-President of the Arizona Medical Association and member of the Council. His hobbies are golf and fly-fishing, in each of which he excels.

PHOENIX CLINICAL CLUB

Massachusetts General Hospital
Case Report No. 30061
December 19, 1949

A twenty-three-year-old woman was admitted because of swelling in the lower back of three months' duration.

The patient had been in excellent health until about eight months before entry, when she developed pain in the lower midback This was severe only when she tried to bend, and it did not radiate. It lasted for about five months, improving slowly but steadily. Three months before admission she noted the gradual onset of swelling in the lower midback. The swelling increased in size, but there was no pain. She had no weakness in the back or legs or any other symptoms.

One sister had arrested tuberculosis.

Physical examination showed a well-developed, well-nourished girl in no distress. The heart was normal. Slight "wheezes" were heard in the right lung. The abdomen was normal. A cystic, fluctuant, soft mass measuring about 15 cm. in diameter was found in the midlumbar region. No neurologic abnormalities were noted.

The blood pressure was 100 systolic, 80 diastolic. The temperature was 98.6°F., the pulse 90, and the respiration 20.

Examination of the blood showed a white-cell count of 11,300. The hemoglobin was 12.8 gm. per cent. The urine was negative. A blood Hinton test was negative, and a blood Wassermann doubtful. A lumbar puncture showed initial pressure of 120 mm. of water, with normal dynamics. Forty centimeters of clear fluid was withdrawn, which contained 3 white cells and no red cells per cubic millimeter; the total protein was 24 mg. per 100 c.c., and the gold-sol curve 0000000000. A Wassermann test was negative. Pressure on the tumor gave no rise in manometer.

Roentgenograms of the spine showed destructive changes in the dorsal portion of the spinous process of the fourth lumbar vertebra. This spinous process lay within and appeared to extend into the area of soft-tissue swelling. There was no evidence of involvement of the neural arch, aside from the spinous process. The fifth

lumbar vertebra was intact. An air myelogram showed the air column poorly outlined in the lateral but clearly visible in the anteroposterior view. It was visualized only below the level of the fourth lumbar vertebra. The nerve sheaths were not filled. The cul-de-sac extended to the level of the second sacral segment and was normal in appearance. There was failure of closure of the spinal canal below the third sacral segment. No connection could be seen between the spinal canal and the mass posterior to the sacrum on the right side.

On the tenth hospital day an operation was performed.

DISCUSSION

Dr. Clarence B. Warrenburg:

The salient features in this case as I see it are as follows:

1. The young woman is in good health—she feels fine and Px is negative except for the 15 cm. fluctuant painless mass in the midlumbar region.

2. There has probably been an intimate family exposure to tuberculosis.

3. The lesion is evidently extraspinal.

4. The x-ray reveals a destructive lesion on the tip end of the spinous process of the 4th lumbar vertebra and this seems to extend into the fluctuant mass.

What condition, therefore, can produce such a picture as this?

1. Neoplasms are not usually fluctuant, and they erode bone instead of producing a destructive lesion—unless they arise in bone. I believe this rules out sarcoma, neurofibroma, myomatous tumors, etc.

2. Syphilis of the bone is ruled out by negative serology.

3. Inflammatory processes:—

   a. Osteomyelitis is cast aside because the onset was not an acute one.

   b. Periostitis—no history of injury.

4. Tuberculosis—why don't they report the chest x-ray? There were wheezes in the right lung. You know they took an x-ray of the chest.

This could be a cold abscess of an early tuberculosis of the spine. The bony lesion is very atypical in that the bodies of the vertebrae are most commonly involved. I was able to find one article on tuberculosis of the spine from the Sea View Hospital in Staten Island in which they analyzed 177 cases of Pott's disease. In that article these statements were made:

"It is generally accepted that the posterior elements (neural arches) or so-called small parts of the vertebrae are seldom involved." These investigators found the neural arches were involved in 28 of the 177 cases studied. They further state that clinical evidence of such involvement sometimes exist preoperatively, as shown by the presence of swelling, abscess formation or sinus near the mid line. Rarely is it demonstrable by Roentgenogram. It is only when the disease process is well advanced that x-ray evidence of involvement of the neural arches can be ascertained definitely."

The protocol states that the neural arches are not involved but the dorsal surface of the spinous process was involved. This 23-year-old girl has had plenty of exposure to tuberculosis.

5. Actinomycosis or Blastomycosis or Coccidioidomycosis for that matter can and, at times, do involve the spine.

Tabb and Tucker in the American Journal Roentgenology in 1933 have this to say about Actinomycosis and Blastomycosis of the spine:

1. The spine is one of the rarest sites known to be affected by this disease.

2. Two or more vertebrae are usually involved.

3. It involves the bodies, pedicles, laminae without any predilection for the bodies which contrasts strongly with TB where the vertebrae bodies bear the brunt of the attack.

4. Large perivertebral abscesses form rather early and are a constant finding.

5. There is usually lung infection where the spine is involved.

6. Although these patients have localized vertebral destruction and large perispinal abscesses the pain is not severe. They walk with a normal gait and are active without any material discomfort; whereas in Pott's disease with abscess formation, the pain is usually severe and the patient welcomes any means of fixation of the spine.

The diagnosis of actinomycosis is made when the sputum or sinus tract drainage reveals the ray fungus. In the case today such information was not available—or it has been denied us.

My first diagnosis is Actinomycosis or Blastomycosis of the spine.

The second diagnosis is tuberculosis of the spine.

The operation was probably the removal of the abscess and adjacent structures en bloc.

Dr. Philip E. Rice:

In this case we are asked to discuss the differential diagnosis of a cystic mass 15 cm. in diameter in the mid-lumbar region in a 23-year-old woman. Her health had been excellent until eight months before, when she developed a lower mid-back pain, accentuated by bending, and without radiation, which lasted five months. As this pain subsided, a gradually increasing swelling was noted in the same area, and at the time of examination there was no pain and also no weakness in back or legs, or other symptoms.

A sister had arrested tuberculosis but no tuberculin test was noted on our patient nor was a chest x-ray recorded. Except for a few "wheezes" in the right lung, her physical examination was entirely normal aside from the mass. Her white count was given at 11,300 but no differential was recorded, which might have helped us in evaluating the possibility of an echinococcus cyst or tuberculosis. The hemoglobin was 12.8 Gm.% and only one normal temperature reading was given, so I assume she ran no fever. I discount the finding of a doubtful blood Wassermann because the Hinton was negative. The spinal fluid was entirely normal and the cyst apparently did not communicate with the cerebro-spinal canal since pressure on the mass caused no rise in manometric pressure.

Now in the x-rays we begin to find something. The spinous process of the 4th lumbar vertebra lies within the soft tissue swelling and shows a destructive change in its dorsal portion. The neural arch seems to be intact. An air myelogram shows a poorly outlined air column in the lateral views but although clearly visible in the A. P. was visualized only below the level of the 4th lumbar vertebra. Nerve sheaths were not filled. The cul-de-sac extended to the 2nd sacral segment and was normal. There was failure of closure of the spinal canal below the 3rd sacral segment.

Now they say "no connection could be seen between the spinal canal and the mass posterior to the sacrum on the right side." I assume they mean that no channel was noted connecting the sacral defect and the cyst above.

In discussion let us first consider the pain which lasted for about 5 months. By its character and lack of radiation it probably was not a nerve root pain but likely was caused by pressure and erosion of the spinous process and muscles and ligaments since it was only accentuated by bending. Does this indicate that the mass arose in the spinous process or that this structure was only in the way? If this were a spina bifida, meningocele or myelocele we should expect some defect in the neural arch. Yet the air which must have been injected into the spinal canal at a level below the mass, was checked at its upper end at the level of the mass. What would have shown if the air had been injected above the mass? Apparently spinal fluid passed this point for we are told that the dynamics were normal, which I assume included a Queckenstedt test.

Because of the lack of communication with the spinal canal, the lack of a break in the neural arch, and the evidence of destructive change in the spinous process, I reluctantly pass by meningocele as the diagnosis. I am sure that this is what the clinicians originally thought she had.

Now what disease might originate in a spinous process and after causing destructive changes therein, enlarge to include the surrounding soft tissues and after several months become a cystic mass of considerable size? I can find no report of a bone cyst of this type and size, the x-ray appearance is not described like cysts would be. Also a solitary myeloma would hardly be expected to become large and cystic like this.

Dermoid or epidermoid cysts which are so common lower down in the back, would not be expected to arise in and destroy a vertebral spinous process. I am also passing by neoplastic diseases of the bone—although this may be a mistake.

Of the bone infections that may cause a fluctuant mass, tuberculosis is by far the commonest. (I have assumed already that it is not a pyogenic osteomyelitic abscess because of the absence of fever tenderness, etc.) However, bone tuberculosis usually begins in the disc and erodes into the vertebral body and more rarely begins in one of the posterior vertebral articulations. Although it is possible to have a solitary tuberculoma start in a spinous process and form a cold abscess, I think it is unlikely.

There are few other infections which might cause a cold abscess arising from a solitary site in a bone. Echinococcus cyst seems like a very good possibilitly, but we have no substantiating

evidence such as a history of association with sheep or residence in the Mediterranean area. Also we are denied knowledge of the eosinophil count. Another possibility is actinomycosis. Was this a farm girl who in her daily chores was in contact with cattle? The single location of the process and the length of time required for its development would fit a diagnosis of actinomycosis which was discovered before a draining sinus began.

Anyway I think we have here a "cold" type of osteomyelitic process which has destroyed a spinous process and formed a slowly growing abscess. As a first guess I will say actinomycosis, and as a second, tuberculosis, and as a third, echinococcus.

Dr. George McKhann:

My last case was too long and we were told too much to make it an easy one. This time we are given too little to make diagnosis easy. Much of what we are told is of negative value.

There was failure of closure of the spinal canal below the third sacral segment, a spina bifida occulta, but with no demonstrable connection with the mass which is described as posterior to the sacrum and on the right. Nor did pressure on the mass give a rise of monometer pressure, so there was no connection with the spinal canal. These two observations should exclude spina bifida, but not associated conditions.

First, one should try to decide whether the lesion originated in the soft tissue or in the bone. The first symptom was pain without any surface evidence, so I shall presume that the original involvement was osseous, because any soft tissue cyst, or tumor that caused bone erosion as it developed in that area surely would have been noticeable.

The osseous lesions that might involve a spinous process include traumatic, degenerative, inflammatory, neoplastic and parasitic. There is no history of trauma. She is young for degenerative lesions and one would not expect them to produce cystic swelling. The acute inflammatory lesions ,osteomyelitis, are discarded because of the eight months' course and lack of evidence of inflammation. Chronic inflammatory disease such as tuberculosis, fungous infections, and syphilis must be considered, as well as typhoid, brucellosis, yaws, leprosy, and staphylococcic infections. The negative Hinton and spinal fluid exclude syphilis. Of the fungus infections we have no information as to residence in the Southwest, nor of lesions in other parts of the body, nor of eosinophilia that might be suggestive of Coccidioidomycosis, Actinomycosis, or the other fungus infections. The lack of eosinophilia might also dispose of parasitic disease, especially echinococcosis as well as the fact that she is not reported as being from, nor even in, Greece or the Mediterranean countries. Tuberculosis is a possibility, but in an unusual location. To further support this diagnosis her sister had arrested tuberculosis, so she must have been subjected to such infection, and further, she had "wheezes in the right lung." No tuberculin test nor chest x-ray are reported. Failure to have made these seems negligent before operating on such a patient with even slight "wheezes in the right lung." Perhaps they were done and not reported to us. The lack of malaise and systemic effects is against tuberculosis, and other low grade, chronic osteomyelitides, such as Brodie's type abscess, Brucellosis, and typhoid spine lesions. There is no evidence of yaws, which may produce bone lesions with destruction, as well as typhoid. There is nothing in the history to suggest a previous typhoid infection, although typhoid lesions have been known to appear six years after the acute attack. Very low grade staphylococcus albus infections have been mistaken for cystic swellings. In fact there is no positive evidence to support any type of infection except tuberculosis.

Tuberculosis generally begins as a single focus in the spongy portion of the body of one of the vertebra and rarely affects the arches, lamina or processes primarily. In fact, Compere & Garrison state never. The proliferative inflammation does spread to and narrows the canal and leads to compression of the cord or roots, to meningitis and/or sometimes to cold abscess formation, which in the lumbar region may point posteriorly as well as follow the psoas muscle. Since it is a focal disease the first symptom is usually pain, localized, usually dull and boring, and aggravated by movement or jarring. Localized tenderness to pressure and a reflex rigidity of the spine may be present. With progress deformity and neurologic symptoms appear. The course is slowly progressive, without fever except in the presence of complications. Diagnosis is made from the symptoms, signs and x-ray, and is usually not difficult. Operation is usually avoided, although with a lesion in a

spinous process surgical treatment, excision, followed by treatment with Streptomycin, I am told, is permissible, provided streptomycin is given preceding operation. All operations may do harm, though.

The neoplastic diseases are too numerous for detailed discussion, since such might arise in either the soft tissues or the spinous process. All osteogenetic neoplasms can be discarded at once. Carcinomatous lesions are common in the spine but are always metastatic, and there is no suggestion of a primary. One author states that in spinal lesions with a doubtful diagnosis the entire skeleton should be x-rayed. From that, one might conclude that the surgeon was certain of his diagnosis, but I am most uncertain. Let us consider osteolytic neoplasms. There is no indication of myeloma, that is, no report of Bence-Jones protein. Giant cell tumors are frequent in the spine, most often in the neural arch, but they exhibit a bony capsule and leave a faint outline of the involved bone. Osteolytic sarcoma through hemorrhage might form a fluctuant mass, but rarely abscesses. Hodgkins Disease, Lymphosarcoma and leukemia may simulate metastatic Carcinoma, but our patient showed no systemic effects. A Chordoma may destroy bone and invade soft tissue, but that should be at the sacro-coccygeal region, not lumbo-sacral. They are usually diagnosed only at autopsy.

The angiomas deserve mention because of the use of the word cystic in describing our tumor. Hemangiomas are more often present in the spine than reported. They tend to give a characteristic x-ray picture showing vertical striations.

Cystic lymphangioma, or sacral hygroma, is the simplest tumor of a class often associated with spina bifida. It arises from extensive cystic dilatation of the spinal subarachnoid spaces. It may, or may not, be connected to the canal. In the latter case it appears as an isolated lymphangioma lying dorsal or ventral to the spine. Fibroma and lipoma, sometimes cystic, also teratomas and other very complex tumors also occur associated with spina bifida. These are usually seen in childhood, but may develop later in early adult life. Lymphangiomas do penetrate and destroy other soft tissue, but I am uncertain regarding their effect on bone, although Ewing states that angiomas may erode bone by extension from adjacent tissue. They are usually present at birth, and by slow growth may become quite large and bulky. They are also seen in the neck and axillary region.

Ewing's tumor, endothelial sarcoma, or solitary diffuse endothelioma, causes pain, not too severe, aggravated by motion, and relieved by the breaking through of the tumor to soft tissue. It is slow growing over months, and slow to metastize. It occurs in early adult life and youth. It may be cystic. There is bone destruction but no new bone formation, which distinguishes it from osteogenic sarcoma. There may be fever and leucocytosis. They respond promptly to radiation therapy, but tend to recur. Christopher reports these are not seen in the vertebra, which does not assist in diagnosis.

From my viewpoint the operation must have been exploratory, and for biopsy although the surgeon may have been certain of his diagnosis.

My Diagnosis

First: Chronic Granuloma, probably tuberculous, but very low grade staphylococcus albus or fungus infections can not be positively excluded because of lack of information.

Second: Osteolytic Neoplasm
Ewing Tumor

Third: Cystic Lymphangioma, or hygroma, associated with the spina bifida.

DIFFERENTIAL DIAGNOSIS

Dr. James B. Ayer: We are not told at what levels the lumbar puncture and the air myellogram were done.

Dr. Jost Michelsen: They were both done at the same time. The needle was put in the interspace between the second and the third lumbar vertebra.

Dr. Ayer: Apparently there were two destructive areas, one in the lower sacral region and one in the spinous process of the fourth lumbar vertebra. Perhaps we should see the x-ray films.

Dr. Laurence L. Robbins: These films were taken at the time of the air myelogram but with a different technic from that which would best demonstrate the soft-tissue mass. I think we can make it out in this area. It apparently extends from about the posterior margin of the spinous process of the second lumbar down to approximately the second spinous process of the fourth lumbar vertebra, which is apparently at about the center of the mass. I do not believe that this

is a congenital anomaly, but rather a destructive process. So far as the air myelogram is concerned, it is not a satisfactory examination. I do not see any evidence of an inflamamtory process encroaching on the spinal canal. There is evidence of congenital anomalies. The sacrel hiatus is larger than usual, and there is incomplete fusion of the laminas of the first sacral segment, as well as an anomaly in the development of the articular facets of the third lumbar vertebra; but these things are of no practical importance.

Dr. Ayer: In the transcription it says that the air column stopped below the fourth lumbar vertebra. Is that your interpretation?

Dr. Robbins: As I said before, the air myelogram was unsatisfactory; but I think that there was air all through the lumbar canal. The only way one could be sure would be to stereoscope these films in the anteroposterior view.

Dr. Ayer: Then the dogmatic statement "It was visualized only below the level of the fourth lumbar vertebra" is not borne out.

Dr. Robbins: That is someone's opinion who had the opportunity to stereoscope the films. I should think there was air going up to the first lumbar vertebra.

Dr. Ayer: A good deal depends on this point, and I should like to say that the experience of some of us with air myelograms has not been entirely satisfactory. I prefer lipiodol. On the other hand, the members of a good many other clinics believe that they can outline a disk, which is something smaller than what we have here. So there is a difference of opinion in the interpretation of air myelograms.

We are told that the physical and neurologic examinations were negative, except for a lump the size of a grapefruit in the midlumbar region. Therefore, discussion must center primarily on the mass. It was said to be cystic and fluctuant, and there was no pain connected with it, except when she bent her back. It enlarged rapidly, although we need not assume that its growth was limited to three months—perhaps eight months is a more reasonable estimate. As no note is made, we may perhaps assume that the mass was neither tender, discolored nor warm to touch. Nor are we told whether it was attached to the skin or deep structures.

From the evidence, I think we can safely say that we are concerned with a rapidly growing mass situated slightly to the right of the midline in the low lumbar region, which contained fluid but was non-inflammatory, and was not accompanied by gross destruction of the vertebras. Therefore, we can eliminate both pyogenic and tuberculous abscess, and also cancer originating in a vertebra. Tumors such as sarcoma and neurofibroma are firm and resilient, not primarily cystic, and may also be eliminated. By far the commonest fluctuant mass in this region is the meningocele, and the description given suggests this, although I miss the presence of the characteristic dimpling of skin and lanugo hair so characteristically seen. Nor is it likely that a meningocele, and even more likely a meningomyelocele, would be present with no disturbance of nerve function, particularly weakness and deformity of feet and bladden incontinence. Nor was there the characteristic lumber defect in the spine. Nor was there fluid in this mass that connected with the subarachnoid space. I am forced to consider the embryonal tumors that occur in this region. Chordoma, which I believe is always firm and gives a characteristic x-ray picture of wide, clear-cut destruction of the sacrum seems unlikely. But dermoid cyst and perhaps lipoma seem to answer the characteristics given. Both are associated with imperfections in the spine.

Was the spinal canal invaded? From the original interpretation of the air myelogram we are led to believe a block existed at the level of the fourth lumbar vertebra, but review of the films by Dr. Robbins fails to confirm this interpretation. Certainly there was no clinical evidence of involvement of the cauda equina, and yet we have often seen the lumbosacral canal filled with tumor — especially lipoma — without clinical evidence of its presence.

I therefore believe that the diagnosis that best fits this condition is a dermoid cyst, probably but not necessarily with attachment to the meninges through the imperfect spine; lipoma is my second choice.

Dr. Maurice Fremont-Smith: May I ask whether cold abscess starting in the spine might not make this picture? You mentioned it, but you then hastily discarded it.

Dr. Ayer: I threw it out rapidly and did not give all the reasons. I think it is fair to assume that the mass had been there for eight months and, if tuberculous, should have shown more spinal destruction than it did. Does not Pott's

disease start from the body rather than from the spinous process? Nor do I remember seeing it in the lumbosacral region. There was no fever. A sister had tuberculosis, but not the patient. Perhaps I threw out tuberculosis too nonchalantly but I do not believe that it is likely.

Dr. Robbins: Is destruction of the spinous process frequent in lipoma or dermoid?

Dr. Ayer: Not in lipoma. In dermoid cysts, however, I believe that there are rests in the spinous processes as well as in the lateral masses. That is a point in embryology of which I am not sure.

Dr. Robbins: Yes, I think there can be; but the thing that is impressive here is that it appears to have been a destructive process and not an erosive one.

Dr. Ayer: That is the weak point in the argument.

Dr. Robbins: I should expect to see erosion of the spinous process.

Dr. Ayer: I rather wanted to have it a developmental defect. Perhaps it is unreasonable to say that I still wonder if it could have been originally a developmental defect because of the other anomalies that you have demonstrated. If I could have that leeway it satisfies me. Certainly an osteomyelitis starting there would not give this picture.

Dr. Robbins: It could give that appearance in the spinous process.

Dr. Ayer: Yes, but hardly the rest of the picture, with the normal temperature and so forth.

Dr. Benjamin Castleman: Dr. Kubik saw this patient before operation.

Dr. Charles S. Kubik: I do not remember the case well except that I missed the diagnosis. Perhaps Dr. Michelsen remembers it.

Dr. Michelsen: Several points were not brought out in the summary that perhaps would have been of some value to Dr. Ayer. First of all, the size of the tumor increased on straining, sneezing and coughing, which made it fairly evident that the tumor contained fluid; but it did not transilluminate. There was also some tenderness to palpation.

It was decided to do an air myelogram not so much because we were hunting for an obstruction or a tumor in the spinal canal, but because we wanted to find out whether the mass was connected with the subarachnoid space. When this decision was made the destruction of the spinous process of the fourth lumbar vertebra had not been reported. The first x-ray films were read as negative.

On biopsy of the tumor a large amount of greenish pus was obtained and a small piece of bone was found at the bottom of the abscess.

CLINICAL DIAGNOSIS (preoperative)

Tumor of lower back (? hemangioma).

DR. AYER'S DIAGNOSIS

Dermoid cyst?

Lipoma?

ANATOMICAL DIAGNOSIS

Tuberculosis of spinous process of fourth lumbar vertebra.

PATHOLOGICAL DISCUSSION

Dr. Castleman: The material we received showed caseous tuberculosis.

Dr. Michelsen: After the diagnosis of a cold abscess was established, Dr. George W. Van Gorder was called in consultation. He stated that he had seen a similar lesion in that location, but that the condition was extremely rare. A detailed clinical checkup revealed that the patient had incipient tuberculosis of the lungs, and she was discharged to a tuberculosis sanatorium.

Dr. Ayer: The "wheezes" meant something after all.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

The presentation in ARIZONA MEDICINE of an article by Dr. H. Corwin Hinshaw is a fortunate occurrence. This journal is not only glad to have a topical report on streptomycin, published in a couple of months since it was written, but honored to have one by Dr. Hinshaw. . . The author was on the staff of the Mayo Clinic until 1939, when he located in San Francisco. He and his colleagues were the first to test a sulfone drug in tuberculosis, the first to test streptomycin in animals and man, and the first to correlate streptomycin and para-aminosalicylic acid. . . Dr. Hinshaw, with Riggins, is author of the first text on the streptomycin drugs, and a recent president of the American Trudeau Society.

TB No. 1—The newly imported anti-tuberculosis drug TB-1 (or Schenleys "Tibione") has been started with unusual caution, due to wise warnings from Drs. Hinshaw and McDermott who were sent to inspect its German usage. . . . A most heartening sign of medical cooperation is the quick summary by Owen of Milwaukee of the results of early effects in 20 Vets. Admin. hospitals. Tb-1 had been used only 28 to 50 days, yet because of its potential toxicity and the close observation and quick reporting, a rapid warning was possible. . . . It appears that liver changes do occur, a case of agranulocytosis had appeared, and other symptoms can be expected.

TB No. 2—Whatever the merits of a Baltimore therapy, said to be "an arsenic compound and sulfadiazine," the comments of the meeting's chairman stand out like an ash-heap in a city park. In two breaths he had these things to say—"It is really most amazing; the results are similar to penicillin against pneumonia, or liver extract against pernicious anemia," and "It must not be construed as a cure for tuberculosis until there is confirmation in the hands of good observers."

Sometimes even a hardened medical librarian must be jolted into a stare or giggle by titles of certain articles which turn up in the Army Medical Index. For instance—Douglas, in Southern Surgeon, "The Human Ovary; Am I My Brother's Keeper?"; Cross, in Proc. Royal Soc. Med., "Penicillin in the Therapy of Dead Teeth"; Perry, in Journ. Exper. Biol., "The Swimming of Whales, and a Discussion of Gray's Paradox"; Totten, in Anat. Rec., "Pneumatocyst of the Physophores"; and, finally, Hecht, in Genetics, "Tetraploid Ratios of Self-sterility Alleles."

There have been few more kindly, plain, thoughtful, and fortunate people than the late DR. GEORGE MINOT. He was a typical New Englander, who loved to say "Et" instead of "Ate" or "Eaten," as a foil for his Harvard education and professorship. . . . He dramatically was saved from diabetes in 1921 by insulin, and was never very rugged; he lived until 64, long after he had saved thousands by his help in the discovery of liver therapy for pernicious anemia. Dozens of valuable and even great research workers have come from his Thorndike Laboratory at the Boston City Hospital.

The special x-ray technic known as planigraphy, laminagraphy, or tomography is used in examination of the chest to identify rarefications such as cavities. The results vary not only with the technic (which amounts to slicing the lung into 1 to 2 cm. slices by x-ray) but with the reading (which often amounts to slicing bologin). The point which we make, after a play on words, is that the method can also be used to show or emphasize DENSITIES in the lungs. They often show up much clearer than by any other method.

All-American (Medical Ass'n.)—The tentative line-up for the coming season has been announced, with the team strengthened at all positions, it is said. Fishbein, who "graduated," will be succeeded at quarter-back (editor of J. A. M. A.) by Austin Smith, who takes over his duties after considerable experience at both right and left half-back (director of therapy and research, and secretary of the council on pharmacy and chemistry). Smith's position will be filled by Bob Stormont, a nifty runner and passer from Washington Junior College (medical director of the Federal food and drug adminstration). Walt Bauer, who has been on the Junior-Varsity (AMA bureau of health education) will take over as sub-quarter-back (editor of "Hygeia," now called "Today's Health"). Dick Plunkett, also of the JV's (queries and minor notes of the J.A.M.A.) has shown some shifty footwork and will get a chance at right half (managing editor of the nine A.M.A special journals). . . . A full schedule has been arranged, and the first game (A.M.A. Clinical Session at Washington) was a sell-out.

To anyone who has to use a mask, as well as glasses, the problems of steam and vision arise. At least two answers are available—a chemically-treated cloth called "Kleerize," and a brown glass-wax called "Anti-Steamer" and various other trade names. . . . They can also be used on laryngeal mirrors, shaving mirrors, windshields, etcetera.

The evolution of operations on the sympathetic nervous system for the treatment of hypertensive vascular disease has gone through several stages. An early, limited type was supplanted by Smithwick's thoracolumbar resection; Peet raised the level to a supradiaphragmatic operation on the thoracic group; others have gone even higher. The question has been raised as to the effect of a "complete" sympathectomy, provided it did not leave the patient a "homeostasic" cripple. . . . Ray and Console of New York have reported in the Annals of Surgery on 30 cases who were subjected to as extensive an operation as possible. The follow-ups were from 1 to 2 years. Only two patients died as a result of surgery, and one later. . . The conclusions were that the procedure does lower the blood pressure a bit more than the lesser operations; that homeostasis is not threatened, after a period of readjustment; that the extra value of the "total" excision is merited only in special circumstances, namely angina pectoris, tachycardia, and peripheral vasospastic states; and that there is persistent sympathetic activity in spite of the wide resection.

The metabolic fate of infused red blood cells has been detected by Levenson, Birkhill, Maloney, and Bell of the U. of Illinois. They report in the Annals of Surgery that, among other things, the red cell mass decreases at the rate of 0.8 per cent per day. The mass of the recipients cells declined at a slower rate, due to bone marrow depression.

The right hand of the Veteran's Administration and the left hand of the Armed Services do not seem to be very closely connected, at least through a central nervous system. . . . The latter authority closes a large series of hospitals, and the former continues to announce building plans. Doubtless the closing hospitals are not exactly what are ideally required for the veterans, but the statements from various headquarters suggest that they have never met each other.

Swetlow and Florman, writers for the trade journal "Medical Economics," have warned the profession about the liability of a physician who uses "experimental" treatment. . . . New procedures are not necessarily experimental, what with th speed with which drugs and methods are reported. If it has been successfully used in similar cases by more than one physician, and the results had been reported in a reputable publication, the use is legitimate. The question is then whether the physician has experimented PROPERLY. . Protection of the doctor may be obtained by obtaining corroboration of qualified physicians on the advisability of the therapy; have qualified medical witnesses; get the patient's consent in writing, and be sure that the statement makes clear that the procedure is experimental and that certain risks are involved.

Stevens of Washington, D. C., has called attention to ABDOMINAL EPILEPSY, a condition which is considered less often than it occurs. The diagnosis has several requisites—a periodic pain of sudden onset which lasts from seconds to a few hours; it is not often accompanied by nausea, vomiting, or fever; the attacks are not due to known dietary indiscretions or psychogenic factor; there is a coexisting convulsive disorder of some degree; the electroencephalogram is abnormal; and anticonvulsive therapy controls the entire syndrome.

The relation of current MEDICAL BOOKS to current topics is obvious in the following list—"The Sexual Criminal" by Paul de River; "Streptomycin and Dihydrostreptomycin in Tuberculosis" by Riggins and Hinshaw; and "B.C.G. Vaccination in Theory and Practice" by K. N. Irvine; "Physiology of Heat Regulation and the Science of Clothing" by L. H. Newburgh.

The November issue of The Journal of Pediatrics contained a report of successful therapy of infectious mononucleosis with chloromycetin (chloramphenicol). The child improved on brief therapy, relapsed, and was quickly cleared of the condition again on re-treatment .. . . This not only indicates a method, but points to an etiology (viral).

The AMA "Principles of Medical Ethics" was revised this past June. Some of the obsolete material was deleted; some of it was revised; and a few of the 44 sections are new. . . . The physician now has guides to the wider limits to which he may go in speaking or publishing medical material. He is forbidden to enter an actual consultation with a cultist. He may participate in a contract where there is no free choice of a physician, under certain conditions. . . . More difficult, in a health resort area, is the stipulation which requires one M. D. to refuse care to a patient until patient's former doctor has been dismissed. Distasteful but well-defined is the rule that one is duty-bound to expose a colleague to his medical group if he is known to be guilty of simple incompetence, dishonesty, or unethical conduct. In addition, he is now expected to expose illegal conduct to officers of the law. . . . The duty of a

physician to inform the patient or his family of progress is clarified, but the question of how frank a consultant may be with the patient is still contradictory.

Antihistamine drugs were reported to depress the tuberculin skin-test reaction in animals. It looked like a good way to control hypersensitivity in the lesions of man. We held up a comment on it for months. Now there are two reports describing ineffectiveness in tuberculous individuals.

PERCORTEN.—Something is in the air, and it may or may not be perfumed. If it isn't, we are going to be pretty mad at the Ciba company. . . Doctors have been told that desoxycorticosterone is no substitute for "cortisone." The former is used for Addison's disease, and the latter for arthritis, etc. . . . Now Ciba is publishing the contradictory results obtained by several groups who have used "PERCORTEN" (desoxycorticosterone acetate) accompanied by ASCORBIC ACID (vitamin C) in patients with arthritis. . . Perhaps this is fair, but somewhat like shooting sitting ducks. The medical public is hopeful but not completely certain about the new adrenal drugs, and unless the stuff is surely good it might better be held up until the evidence is definite.

REPORT TO THE PRESIDENT AND COUNCIL OF THE ARIZONA MEDICAL ASSOCIATION

Report to the President and Council of the Arizona Medical Association on the visit of Dr. Arthur J. Present, Chairman of the Professional Board, to the Congress on Medical Education and Licensure and to the Associated State Postgraduate Committees' Meetings, Chicago, February 3 through February 7, 1950.

It is well worthwhile that a representative be sent at state expense to attend these meetings. In the first place it seems only fitting and proper that this state be represented in all national activities, allowing that individual to bring back to the state organization such ideas and inspirations as he can attain from contact with those best versed in their fields. It is interesting to know that the problems are not so different and at times to find that some differences from the general over-all picture are applicable to our own state. Furthermore, one can meet the individuals who are doing things. A contact has been established and direct information may then be obtained from the best sources. Further, I think it a little too self-effacing not to send representatives to these meeings. The only way that we can grow in stature nationally is to let it be known that we are interested in what is going on at the national level.

As indicated in the enclosed programs the meeting of the Associated State Postgraduate Committees was held on February 4, 1950 at 2 P. M. Dr. Parkins, who is apparently the president of the Massachusetts Postgraduate Organization, and who has been the head of this committee and a founding member, presided. From what I gather, the following are the facts relative to this committee. It was in about 1929 that Dr. Parkins started investigating the extension work at Harvard and tried to find out during the course of the next three years why it was that so few doctors came to the Harvard Postgraduate courses. It was at the end of that study that this committee was founded. Its purpose was to get a common ground for the exchange of ideas relative to postgraduate education which apparently meets with some resistance, at least a lack of enthusiam, throughout the outlying counties in most states. It is found in most of these states that there is a decreasing response in successive years. It was relative to this whole problem that the organization was founded and it is certainly worthy of our support. The formal organization began in 1937, based on the reports of the New York State and the Michigan State Postgraduate committees. Dr. Parkins discussed the changing concepts of postgraduate medical education. His main points were: He felt that organized medicine has a direct obligation to see that postgraduate education is available and continued. It is their responsibility to provide instructors. Dr. Parkins also felt that the sectional method of instruction is probably the best and he rather hopes that not only will there be sections in the states which are covered by clinics and seminar groups but also that the whole country will be divided into areas so that we can organize a fairly cooperative plan somewhat like the army corps area system. He discussed the Kress Foundation grants which are now available for postgraduate medical education. Not much has been expended as

yet but that foundation, originally used for the furtherance of art, has apparently now been placed at the disposal of postgraduate educational groups. Most of it is being used through medical schools but I understand that the state of Pennsylvania has been able to obtain a small grant from this organization. The speaker felt that most medical men need leadership to guide them through the maze of the newer medical knowledge for few have an inherent latent enthusiasm to dig through it for themselves and therefore they are denying themselves and their patients these advantages. He feels that it is our problem as one means of combating socialized medicine to publicize the fact that we are giving these educational programs and distributing medical knowledge to the doctors in the local communities. He mentioned the fact that available for us are the various medical schools, such as the University of Colorado and the Southern California schools in our instance, but also that we should make use of the American Colleges of Surgery, Pediatrics, and now of General Practice. He felt that it was important that this knowledge be disseminated for he had read recently that 85% of surgery was being done by general practitioners and they certainly could stand whatever little training might be provided. He felt that the hospital trustees have a definite obligation as well, not only to their interne and resident programs but also to all physicians, and he feels as the undersigned feels that the state society should push this type of improvement of hospital training program for all. Representatives of the American Academy of General Practice were at this meeting, including Mr. Mac F. Cahal who is the executive secretary. They brought out the fact that the American Academy of General Practice requires 150 hours every three years in postgraduate training, at least 100 hours of which must be under proper auspices. State medical society meetings and hospital staff organizations as well as seminar work are considered satisfactory evidences of such "proper auspices."

The next speaker noted on the program as the fourth item of business was Dr. Charles Wm. Smith, Chairman of the Commission on Graduate Education of the Medical Society of the State of Pennsylvania, and their program is a broad comprehensive one. He spoke on the role of the state medical society in postgraduate education making the essential points that their state program consists of their annual meeting, their county medical meetings as in our state, and also sectional meetings as indicated in the enclosed brochure of the Graduate Education Institute of The Medical Society of the State of Pennsylvania which is the only copy I have and which I sincerely trust will be returned. He felt very strongly that the Journals are not the answer to the problem because the articles are not all good, time is limited and doctors just do not read them. He feels that the state societies might well cull the recent developments and submit them in either a brochure form or through widespread seminar plans. They use a fee for course plan and charge a fee that is fairly high compared to ours. They have a central committee which has a fairly handsome budget from the state society and it is not made up of one or two individuals but is made up of several enthusiasts of whom I am certain Dr. Smith is the leader. The local autonomous county medical societies can request any help they wish from this state board or committee and in general it has worked satisfactorily. Their planned program with refresher courses until now has usually taken one day a week and they send speakers to eleven points in the state. About 10% of the membership of the state society is all that they reach. Next year they are dropping the refresher type of course and instead are pushing twenty subjects, one in the morning and one in the afternoon, twice a year, so that in a five-year program all of these twenty subjects will be covered. It is felt that their experience is not unlike the experience elsewhere that the didactic type of course is falling off in its acceptance and response. They pay the people who lecture from $50 to $75 per day and their expenses.

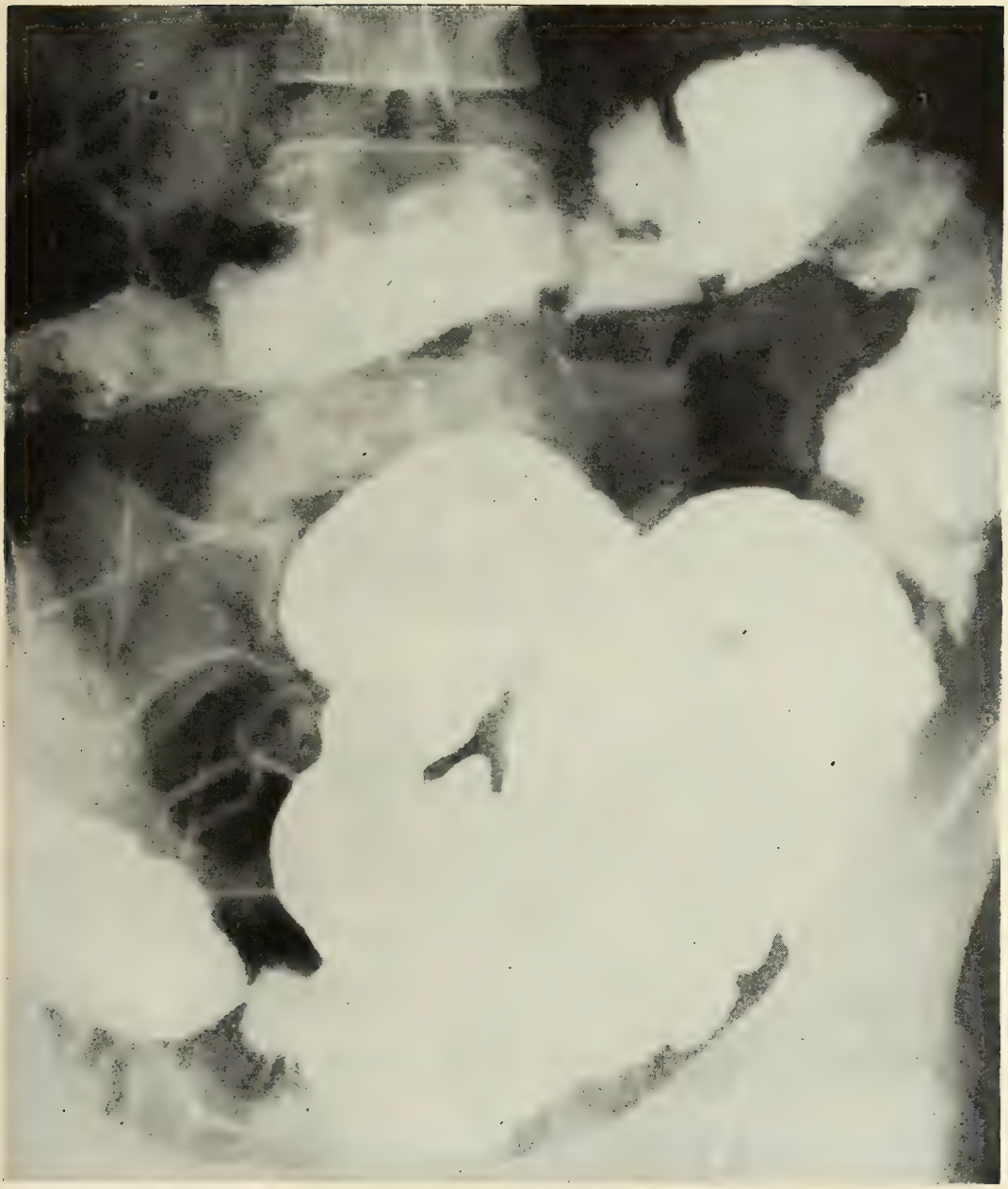
In the discussion period Dr. Bibler, who is president I believe, or at least head of the Postgraduate Education Program of The American Academy of General Practice, said that any program must be good and it must be attractive if it is to be worthwhile. He felt that panel discussions are most conducive to disseminating information and he thought that dinner meetings are very important for doctors are so often busy, yet they do have to take time to eat.

As a result of this meeting I should like to recommend the following as suggestions in our postgraduate education program in the state of Arizona. First, I think that we should pay the very small fee of $25.00 to support the work of

the Postgraduate Committee whose meeting I attended. On the basis of many of the ideas suggested here it would seem that our state is not too different from others and therefore that we may use some of the ideas presented at this meeting. It was felt imperative to cut down on the number of meetings and I think that all practicing physicians in the state would agree. In order to meet the obligations and requirements of The American College of Surgeons the staff meeting deal has become burdensome. Any possible way in which our educational program can be worked in conjunction with staff meetings or with county medical meetings would undoubtedly stimulate a better response. I believe that program teachers should be limited to good teachers and not just to "names." It was felt that the success of the entire program depended largely on the caliber of the teachers. Didactic methods of teaching are certainly bringing out decreasing response throughout the country and clinical and panel discussions help. Furthermore, these are a good source of publicity for the medical profession as a whole. In clinic discussions we might utilize the abilities and the available diagnostic factors in the local areas to "work up" cases, bring in outsiders and have a general discussion relative to those cases and to the recent advances in medicine which are applicable there and in adjacent fields. This type of clinic teaching seems to be well accepted, well received and thoroughly enjoyed, particularly when the doctors in the outlying communities can "hang one on" the visiting specialist. Furthermore, I think that all meetings within the state, no matter what the nature of the meeting other than perhaps a hospital staff meeting of routine nature, should be publicized through a state bulletin. I do not believe that the state journal is an adequate medium for the publicity is too delayed, but if possible it might be well to have a clearing station or center either in the state office or at some other headquarters where all of the veterans' hospital programs which are excellent and the county medical programs which are now improving continually, and any other medical meetings of note will be recorded. That information should be widely disseminated throughout the state promptly. I think this is one of the most important features of successful programs. That the general practitioner should have the advantages and that it is our responsibility is not questioned. Since the country as a whole has about 110,000 general practitioners and 40,000 specialists it is obvious that the activities of organized medical groups and particularly the American Academy of General Practice should be encouraged. They have a state organization in Arizona and I believe it should be contacted relative to its ideas in postgraduate medical education.

On the following day, namely, Sunday, February 5, began the first of a series of lectures, a program of which is enclosed, and which covered the general subjects of medical education and licensure. On Sunday morning the discussion relative to the evaluation of the qualifications of candidates for certification by American Boards in the specialties was most interesting but does not apply to state level, I believe. The meeting was attended and one was impressed mostly I think by the thoroughness with which these Boards, and in particular the American Board of Internal Medicine as represented by Dr. Victor W. Logan, M. D. of the University of Rochester Medical School in Rochester, New York, are trying to be fair, honest and to certify only those individuals who are actually deserving and yet denying certification to none who may appear before them.

On Monday, the Council on Medical Education and Hospitals began its series of meetings. Of importance I believe in the session at 9:30 on Monday morning were the papers relative to the location of a medical school, considerations in favor of locating a medical school on a university campus or in a metropolitan area. This controversy was extremely interesting and I certainly think that should the state of Arizona in the reasonable future consider a medical school many of the arguments, and many of the financial problems, and many of the facts relative to this situation could be obtained without too much difficulty both from the published articles and from the individuals in question. The material presented was extremely interesting, and as the speakers concluded it would seem to this observer that there are advantages in both types but that a metropolitan school probably has many more advantages than the localization of a medical school on the campus of a very small university. Neither Tucson nor Phoenix, it would seem to me, are too small at the present moment to consider the possibility of building a medical school. With modern transportation the populations that either of these communities could draw



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upon would be adequate clinical material I feel fairly certain. Further statistics could be obtained from these men and they seem to be critical individuals to give us that further information. With reference to this it seems wisest that one refer for further information to the report of Dr. Verne Lippard, who is now the dean of the medical school at the University of Virginia. His survey of the Florida situation apparently is the basis for much of the argument pro and con, and apparently it is a very excellent review. I don't know where it is published but apparently it is available, and if further information is desired Dr. Lippard should be contacted and a reprint of his report requested.

On Monday afternoon the panel discussion on the place of the specialties in undergraduate medical education again has nothing of importance as far as the state level is concerned. However, it seems fair to state that medical education in Great Britain is certainly in a very sad situation, and as far as teaching the specialties in this is concerned, there seems to be no unanimity of opinion as to the distribution of weight for one specialty versus another, and it always seemed that the surgeons and the internists gained the upper hand.

The meeting on Monday evening consisted of a dinner with a talk on how can medical education help solve problems of medical care. I felt that it was the unanimous opinion of all those who attended, including myself, that no information relative to this subject was available from this speaker and that little was gained by the meeting.

The meetings of Tuesday were quite interesting and apply more to the interstate reciprocity problems of licensing boards. I do not believe that very much can be done short of legislation, and this is a problem for those boards, and I feel very keenly that the State Board of Medical Examiners of Arizona was not represented, for these were very pointed and very useful remarks.

Respectfully submitted,

Arthur J. Present, M. D.
Chairman, Professional Board,
Arizona Medical Association.

DOSAGE CONTROL IN ANTICOAGULANT THERAPY

With the increasing usage of the anticoagulants in therapy of the thrombo-embolic diseases and the extension of this type of therapy from the hospital to the ambulant patient, the problem of accurate dosage control has become quite evident. This is particularly true of Dicumarol which is the anticoagulant which is most frequently given to ambulant patients and often for long periods of time. Also overdosage is more dangerous and harder to combat than an overdose of heparin. Heparin is eliminated rapidly and the effects of an overdose are dissipated within a few hours after discontinuance of the drug, while the effects of Dicumarol may persist for a week to ten days after stopping the drug unless counteracting measures are taken.

A number of systems have been suggested for control of the dosage of Dicumarol, but the only one of any practical significance at this time is the one in almost universal use; the estimation of the prothrombin content of the blood or the "prothrombin time." A review of the literature and conversations with physicians who are prescribing anticoagulants reveal much confusion concerning the value, reliability, and interpretation of this procedure, and especially in its relation to the regulation of the dosage of Dicumarol. It is in the hope of clarifying the present status of the situation that these few remarks are presented.

The value of the test rests on the observation that Dicumaro l reduces the prothrombin content or the prothrombin activity of the blood. If this content is reduced to ten per cent or below, dangerous hemorrhage may occur. A percentage of thirty or more is considered safe. The actual therapeutic level lies between these limits and as a matter of fact is kept around twenty per cent in most cases.

Two methods of prothrombin determination have come into use. Both have many modifications. The two-stage method of Warner, Brinkhous, and Smith is a long and complicated procedure and its use is confined chiefly to large research laboratories. It can be disregarded in the clinical field then except that the reader should be told that the prothrombin values obtained by this method do not correspond with the values obtained in the usual clinical methods and these values can be confusing when encountered in the literature. Unfortunately too, the differences are greater in the lower percentage

range, which is the important and dangerous area in therapy. The direct or one-stage method of Quick or one of its numerous modifications is comparatively simple and is usually employed in the private or hospital laboratory. In spite of its comparative simplicity from a technical viewpoint, and even though it has been in use for several years, actually it is still far from a reliable and standardized test. There are so very many possibilities of technical and personal error that even in the most careful hands the reliability of the test varies from day to day. The numerous modifications, each designed to eliminate or minimize some source of error, have only served to confuse the interpretation of results and this especially holds true in trying to correlate results reported by different laboratories. Different workers use different standard preparations of thromboplastin, giving different normal times. Of course, different groups of sera are used as normal controls by different workers, and at different times by the same worker. Even the manner of collecting the specimen has been shown to affect the ultimate result. The reports from different laboratories are sometimes given in different terms. One may report in prothrombin time in seconds, another in percentage of prothrombin of the normal and another in percentage of normal prothrombin times. Prothrombin times are the most confusing since one laboratory may report normal times of twelve seconds, and another twenty seconds, and both be entirely right for the reagents they are using. Prothrombin percentages are the most satisfactory and easy to correlate provided that the percentage curves are prepared with care for every batch of thromboplastin used.

This situation is not one for which the laboratories can be blamed. The problem is the subject of much scientific research at this time and eventually, I believe, a simple and universally reliable test will be perfected. Until then, what is the physician who needs to use these drugs to do? The obvious answer, of course, is to make the very best use of what he now has available. I offer these few suggestions as to how he may do so.

Do not depend entirely on laboratory control. There is no substitute for careful clinical observation. Severe hemorrhage has occurred even with prothrombin levels in ranges ordinarily considered safe.

Have your prothrombin estimations done in so far as possible by one reliable laboratory and preferably by the same technician. Learn what the values reported mean and use the reports of this laboratory as something familiar to "tie to" in evaluating prothrombin activity.

If necessary to correlate results reported by another laboratory, do not try to compare "prothrombin times" very accurately. The best comparison is through percentages of normal prothrombin activity provided they are based on carefully constructed curves.

Remember that each patient's dosage requirement must be determined individually. Do not be tricked into overdosage by giving one patient a dosage simply because it proved satisfactory for another.

ABSTRACT

Kierland, R. R.; Herrell, W. E., and O'Leary, P. A.: Treatment of Syphilis with Aureomycin Administered by Mouth. Arch. Derm. and Syph. 61:185, (Feb.) 1950.

Seven cases are reported, two patients with early infective (dark-field positive) syphilis, two patients with late noduloulcerative cutaneous syphilis, and three with neurosyphilis. all treated with aureomycin administered by mouth. Total dosage varied from 44.2 to 90.5 gm. Frequent, but mild, untoward reactions appeared.

Results were encouraging and indicate that: (1) Aureomycin exhibits definite antisyphilitic activity, (2) aureomycin should be useful when the patient cannot tolerate penicillin, (3) oral medication has an advantage for certain patients, and (4) the future will determine the proper place of aureomycin in the treatment of syphilis.

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Arizona Blue Cross paid a total of $912,674.13 to hospitals for the care of its members in 1949, it is reported by L. Donald Lau, executive director. The payments represented a return to Blue Cross members in hospital services of 87.6 cents out of every dollar paid into the plan during the year, Mr. Lau said. Operating costs for the year were 12.1 per cent of gross income, as compared with 13.1 per cent in 1948. The operating costs have shown consistent decreases as plan enrollment has grown.

The 1949 payments to hospitals covered 14,355 separate hospital admissions, representing 79,738 patient days.

Of the total hospital payments, the twenty Arizona Blue Cross member hospitals received $876,659.10 for 13,361 cases, amounting to 73,041 patient days. Admissions to non-member hospitals represented 6.9 per cent of the total Blue Cross cases for 1949.

Total payments to hospitals since the beginning of Arizona Blue Cross five years ago last October amounted to $2,131,815.87 at the end of 1949.

The $2,000,000 mark in hospital payments was passed last November .

Net enrollment increased from 100,030 at the end of 1948 to 109,832 at the end of last year. The number of Blue Cross cases in hospitals increased 42.7 per cent during 1949, and the number of patient days increased 27.1 per cent. The average length of stay in hospitals during 1949 was 5.49 days as compared with 6.13 days in 1948.

A breakdown of maternity case statistics shows, Mr. Lau said, that maternity utilization constituted 13.4 per cent of all cases in employee groups during 1949, as against 26.9 per cent among non-group subscribers. The non-group subscribers are those who first joined Blue Cross as members of employed groups and who retained their memberships after leaving their groups. This marked differential in utilization was interpreted by Mr. Lau as evidence that there is more of a tendency among non-group members than there is among group members to use Blue Cross in anticipation of the need for a specific hospital service (such as maternity care)rather than for over-all protection against the catastrophic financial aspects of unexpected hospitalization.

Out-patient cases accounted for 14 per cent of all admissions to Member Hospitals last year, and maternity cases comprised 18.2 per cent of the admissions. There was a total of 2,618 maternity cases covered by Blue Cross in 1949 as compared with 1,472 in the previous year.

All officers were re-elected at the annual meeting on March 19, Mr. Lau announced. They are: J. O. Sexson, president of the board of trustees of Good Samaritan Hospital, president; Dr. Preston T. Brown, vice-president; Glenn C. Taylor, vice-president of the Valley National Bank, treasurer, and William J. Wasson, realtor, secretary. All are Phoenix residents.

Elected to the board of directors were Dr. Martin Heidgen, administrator of the Tucson Medical Center; Lloyd C. French, superintendent of the Southside Hospital, Mesa, and Dr. Harry T. Southworth, Prescott. Re-elected to the board were Mr. Taylor, Mr. Wasson, A. S. Gibbons, Yuma; Dr. Brown, and Dr. Jesse Hamer, Phoenix. Continuing members of the board are Charles McCarty, Tucson; Robert A. MacFarlane, Charles Korrick, Carl Muecke, Mr. Sexson, Sister Mary Eucharia of St. Joseph's Hospital, Emmett McLoughlin of St. Monica's Hospital, Dr. Lloyd Swasey, and Dr. Frank Milloy, all of Phoenix, and Sister Agnes Mary, St. Mary's Hospital, Tucson; A. M. Crawford, Prescott; Dr. Harold Kohl, Tucson, and Dr. Hal Rice, Bisbee.

The executive committee, comprising the officers and Sister Mary Eucharia, was re-elected. Mr. Lau and Ned F. Parish, assistant director, were named delegate and alternate, respectively, to regional and national meetings.

In a statement to the board of directors, Mr. Sexson declared that the Blue Cross organization and its member hospitals "have worked toward the common good of the community and the

state. Blue Cross has made on outstanding contribution in helping the people of Arizona provide for themselves a splendid protection against the unexpected expense of hospital care—at a price they can afford to pay.

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BOOK REVIEW

FROM THE HILLS. By John Zahorsky, M. D., Clinical Professor of Medicine. St. Louis, M.ssouri. Cloth. $4.00. pp. 388. The C. V. Mosby Company. St. Louis, 1949.

At the behest of his close associates Zahorsky has produced his autobiography.

Born in Hungary in 1871, his ambitious mother and hard-working father brought him to Cleveland, Ohio, at the age of six months. Six years later the family moved to Steelville, in the northeast part of the Missouri Ozarks. There he was reared as a typical Midwestern farmboy, but with Central European overtones. With some financial assistance from his parents, but mainly through his own efforts, he obtained his education, which included the course at the Missouri Medical College (later Washington University School of Medicine) from which he graduated in 1895.

He was of the old school of "self-made" specialists. Circumstances brought him into pediatrics early in his career, and long before he retired, more than fifty years later, he had attained national prominence in his field. As Professor of Pediatrics at St. Louis University he was outstanding as a clinician rather than as a laboratory worker, as his numerous publications on clinical subjects indicated.

His delightful book proves him to be a charming and scholarly man. In it he dwells less on his vocation of medicine than on his avocations of poetry and nature study (especially botany). All through it we find evidence of his refined, gentle nature which proved so useful in his work with his young patients and their delicate mothers.

Those who know St. Louis will naturally be interested in the historical aspects of the book.

As extracurricular reading many a doctor will receive inspiration from "From the Hills."



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PERSONAL NOTES

DR. THEODORE STONE, M. D., Ph. D., Professor of Neurology and psychiatry, Northwestern University, Chicago, Illinois, addressed the Staff of St. Monica's Hospital, Phoenix ,February 16th on "Tremors and Hyperkinesias." The following week he addressed the Staff of Good Samaritan Hospital, Phoenix, on the subject "Functional Complications in Organic Disease and Organic Symptoms in Functional Disease."

DR. JAMES S. SHIPMAN, attending surgeon of Wills Eye Hospital, Philadelphia, Pennsylvania, spoke to the Staff of Good Samaritan Hospital, Phoenix, February 27, 1950 on "Retinal Detachment." He showed a colored movie of the operation for correction of this defect.

A series of lectures on Medical Jurisprudence for the Staff of Good Samaritan Hospital, Phoenix, was inaugurated by introductory remarks February 27, 1950 by **FRANCIS DONOFRIO,** Judge of Maricopa County Superior Court, and **MR. YOUNT,** attorney for the Industrial Commission.

DR. MAURICE RICHTER, Phoenix, attended the Los Angeles County Radiological meeting in Los Angeles February 18th and 19th.

A Professional Conduct and Grievance Committee of Maricopa County Medical Society has been appointed by President **HENRY WILLIAMS,** of the Maricopa County Medical Society. Chairman of the committee is **DR. J. M. GREER,** Phoenix. Others members are **DR. GEORGE B. IRVINE,** Tempe, and **DRS. KENT THAYER, R. H. CUMMINGS, O. L. BENDHEIM, G. GILBERT** and **M. ROBB,** all of Phoenix.

DR. REED SHUPE, Phoenix, and **DR. ROYAL W. RANDOLPH,** Tucson, have been appointed to the State Board of Health by Governor Garvey.

DR. LLOYD K. SWASEY, Phoenix, recently appeared as a witness before the State Legislators in behalf of the further appropriation of funds to expand the State Tuberculosis Sanatorium.

The Scientific program of the March 6th meeting of the Maricopa County Medical Society was a Tuberculosis Forum. **DR. JAMES P. WARD,** Phoenix, Arizona State Director of Public Health, led off with "Our Arizona Tuberculosis Problem." He was followed by **DRS. B. L. SNYDER,** Phoenix, on "Recent Advances in Medical Therapy;" **DR. HOWELL RANDOLPH,** Phoenix, on "Recent Advances in Surgical Therapy," and **DR. LLOYD K. SWASEY,** Phoenix, on "Treatment of Tuberculosis in our State Sanatorium."

DRS. CARLOS CRAIG and **PRESTON BROWN,** Phoenix, recently attended the Blue Shield-Blue Cross National Convention in Montreal, Canada, representing the Arizona Plan.

DR. SAMUEL I. ROTHMAN, Phoenix, who has been practicing at 1617 East McDowell Road, is ill in Papago Park Veterans Hospital.

DR. ROSS T. McINTIRE, administrator of the National Red Cross Blood Program, has recently visited Arizona on a tour of regional centers. He spent two days in Tucson, meeting with the Medical Advisory Committee for the Southern Arizona Regional Blood Center. He visited the offices and equipment, and also called on the Veterans Hospital, in company with Major Robert Neurnberg of the 43rd Medical Group at Davis-Monthan Air Base and Dr. George Hartman of the Regional Center.

Dr. McIntire was war-time Surgeon General of the Navy, personal physician to the President, and is now a member of the board of governors of the College of Surgeons.

The Benson Hospital of ten beds, established by **DR. J. M. HESSER,** has now been included in the Blue Cross Hospitals of Arizona. This brings the total of such hospitals in the state to 22.

The **SCHOOL HEALTH COUNCIL** of Tucson, a private organization, has arranged and paid for medical care for 239 school children since September. One hundred and nine were treated for visual difficulties and 57 for heart lesions.

The Board of Control of the **ARIZONA STATE HOSPITAL FOR THE INSANE** has requested through Governor Dan Garvey, that the U. S. Mental Health Institute make a survey of the institution. The Institute will set up standards, and might give a "provisional accreditation" until the Hospital meets the standards.

Dr. Riley Guthrie of the Institute will come to Arizona in April.

The Yuma County Board of Supervisors has voted to purchase the addition to the **YUMA GENERAL HOSPITAL** which was built by the Federal government during the war. The price is to be $45,000, about one-fifth of the cost.

Dr. E. J. Tiffany, senior surgeon of the U. S. Public Health Service, has completed an inspection of the facilities of the **ARIZONA STATE DEPARTMENT OF HEALTH LABORATORIES.** He

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has recommended an increased working space, new equipment, and additional personnel to fill the present needs.

At the time this is written, Senators Sam Head of Yavapai and Joseph Mansfield of Yuma have introduced a bill to appropriate $85,000 for the construction and equipping of a state laboratory.

The controversial addition or replacement for a state tuberculosis hospital has been revived, with a bill by Senators Head and Mansfield for $500,000 for that purpose.

DR. HOWARD D. COGSWELL of Tucson attended the winter meeting of The Central Surgical Society in Chicago.

GYNECOLOGICAL CLINIC AT HOSPITAL

The Arizona State Hospital has established a Gynecological Clinic for its patients.

A group of old and new patients is examined weekly, and particular stress is placed on tumor diagnosis, each patient having a Papanicolau smear taken.

In essence, it is a tumor clinic for women patients. The gynecological work is under the direction of Dr. Henry A. Siegal, and the cytological and other pathological interpretations are done by Dr. Harold Wood.

It is hoped that in the near future a tumor clinic for male patients will be started.

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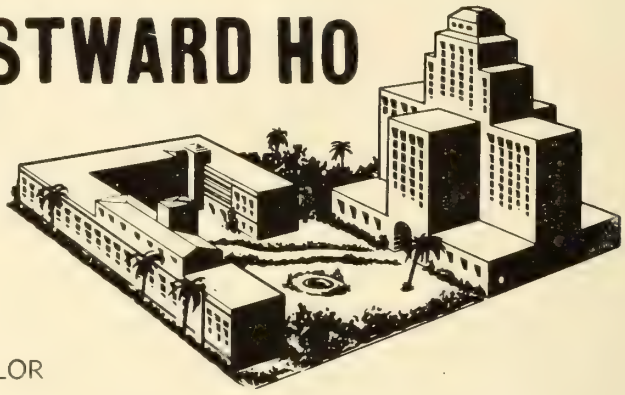
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MRS. ALFRED HELDOBLER

Mrs. Alfred Heldobler is Publicity Chairman for the Pima County Medical Auxiliary. She was born in Stanley, Wisconsin and was graduated from the Southern Oregon Normal School and the Behnke-Walker Business College. She taught school and after her business training, was a medical secretary in Portland. In 1940 she married Dr. Alfred Heldobler, who is a graduate of the University of Oregon Medical School. Following war duty, Dr. Heldobler spent three years in orthopaedic residency at the University of California, following which they moved to Tucson.

Mrs. Heldobler is active in Red Cross Gray Lady work at the Veterans Hospital and has participated in community and Red Cross drives.

Dr. Heldobler is associated with Dr. Robert Hastings in Tucson in the practice of orthopaedic surgery.

PIMA COUNTY

The monthly meeting of the Pima County Medical Auxiliary was held Tuesday evening at the Santa Rita Hotel. Following the business meeting Wm. B. Pyle entertained the group with a very amusing talk.

A motion was made that Mrs. Darwin Neubauer, Philanthropic Chairman, and committee investigate and decide on some worthwhile project for which auxiliary funds are available.

The Nominating Committee, composed of Mmes. E. M. Hayden, Max Palmer and F. J. Lesemann, recommended the following members for officers of the Pima County Medical Auxiliary for the fiscal year 1950-51:

Mrs. Brick Storts, President-elect
Mrs. Leo Kent, 1st Vice-president
Mrs. Richard Hausmann, 2nd Vice-president
Mrs. Darwin Neubauer, Recording Secretary
Mrs. David Engle, Corresponding Secretary
Mrs. Kenneth Baker, Treasurer.

Hostesses for the refreshments were: Mmes. George Fraser, Chairman; Edward Hayden, George L. Dixon, A. L. Lieberman, J. B. Littlefield, Wm. Manning, C. J. Newcomb, George Shetter, B. P. Storts, M. M. Mandel, H. J. Stanford and Clyde Flood.



Mrs. Harry T. Southworth, Prescott

(Continued on page 62)

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MRS. HARRY T. SOUTHWORTH

Mrs. Harry T. Southworth has served as state president of the Woman's Auxiliary to the Arizona Medical Association. She has served as president of the Yavapai County Auxiliary and has held several offices and served on many committees in both the state and county auxiliaries.

This year Mrs. Southworth is giving much time to crippled children. She is secretary of the Yavapai Chapter, Arizona Society for Crippled Children, and is chairman of the Hearing Conservation program in Yavapai county.

The Senior and Junior High School Parent-Teacher Associations both claim a good deal of Mrs. Southworth's time as she is holding an office in each organization. The Southworths have two children, Tom, seventeen, and Kathryn, twelve.

YAVAPAI COUNTY

The Woman's Auxiliary to the Yavapai County Medical Society has been very busy this year, not with any one project but with many.

At Christmas time, the Auxiliary secured and decorated three large trees for the Community Hospital. It also provided tray decorations to be used throughout the hospital for Christmas dinner. Food was supplied for three needy families and clothing and toys given to twenty-four children.

Our members have given much time and effort in the development of the program of the Children's Retreat, a resident home for children suffering from asthma.

Individual members of the Auxiliary are giving much time to the Crippled Children's program, the Well-Baby Clinic, and to sewing for the Red Cross.

The annual rummage sale for the benefit of the service and welfare fund was held March third and fourth. Funds raised by this sale will be used for contributions to several general and local service projects.

This year, as in the past, whenever the Auxiliary has been approached with the need of food, clothing or fuel for families, it has responded.

The Yavapai County Auxiliary consists of seven active members and nine associate members of Whipple. We feel that the projects undertaken are noteworthy because of the small membership. Much credit goes to the associate members of Whipple for their active interest in the Auxiliary.

Margaret O. (Mrs. H. T.) Southworth,
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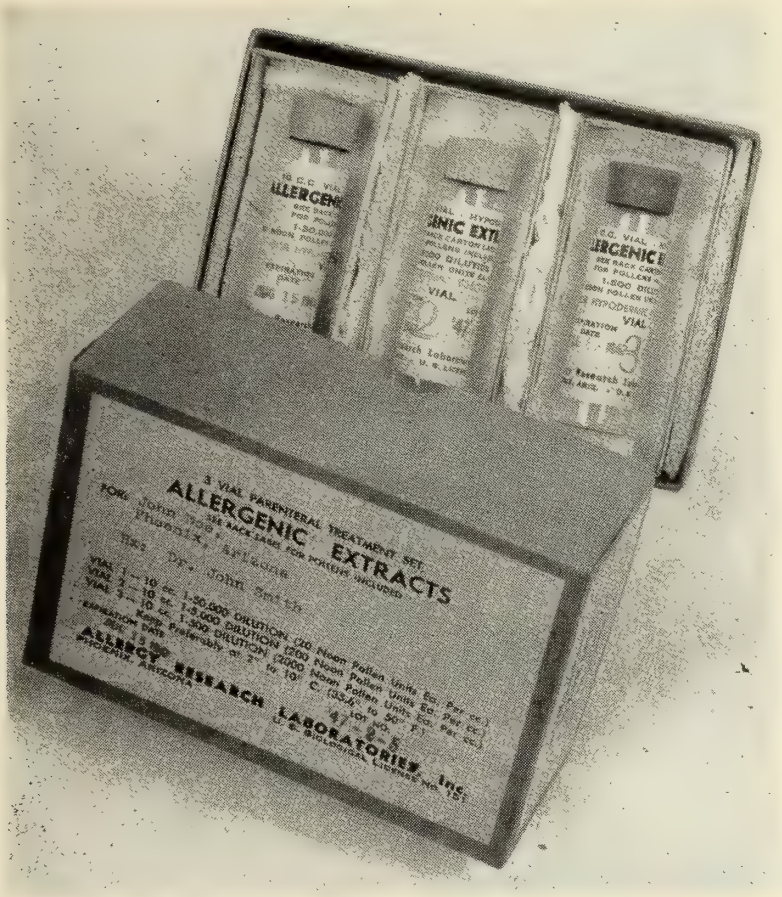
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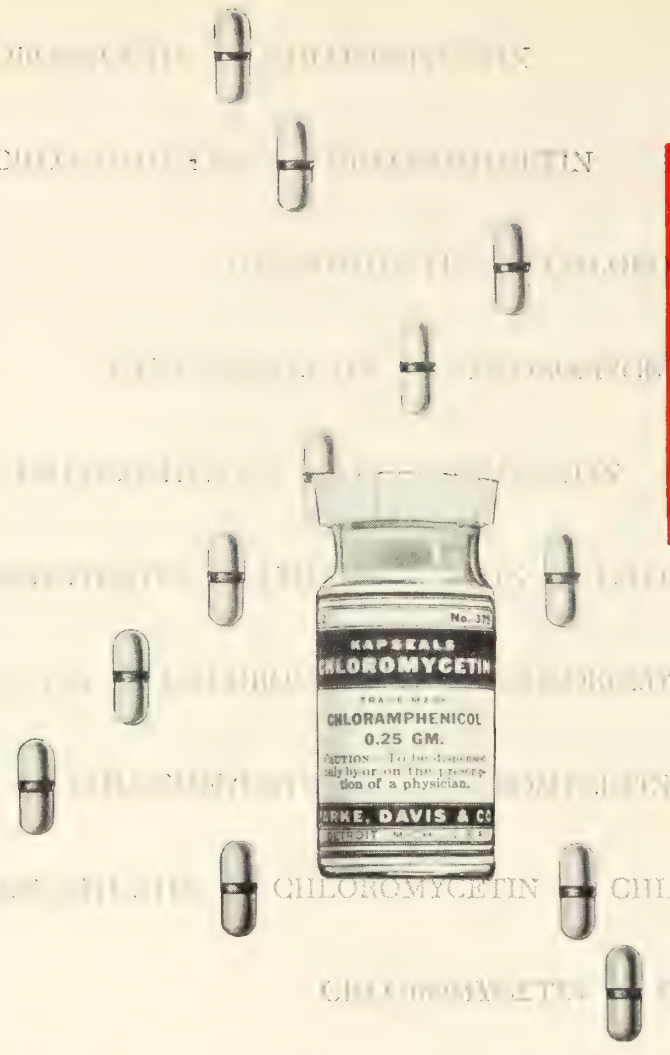
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Hewitt, W.L., and Williams, B., Jr.: New England J. Med. *242*:119, 1950

toxic reactions or signs of intolerance were observed."

Payne, E. H.; Knaudt, J. A., and Palacios, S.: J. Trop. Med. & Hyg. *51*:68, 1948

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Ley, H. L., Jr.; Smadel, J. E., and Crocker, T.: Proc. Soc. Exper. Biol. & Med. *68*:9, 1948

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*Orent-Keiles, E., and Hallman, L. F.: The Breakfast Meal in Relation to Blood-Sugar Values, Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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$200 000 deposited with State of Nebraska for protection of our members.

Disability need not be incurred in line of duty — benefits from the beginning day of disability.

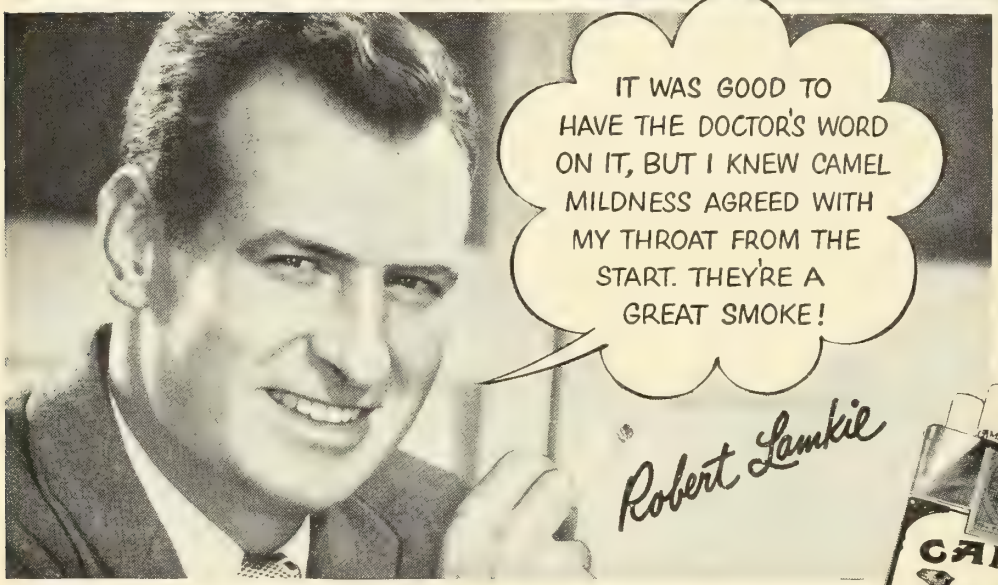
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Bibliography: 1. Loveless, M. H., and Dworin, M.: J. Am. M. Women's A. *4*:105, 1949. 2. Schiller, I. W., and Lowell, F. C.: New England J. Med. *240*:215, 1949.

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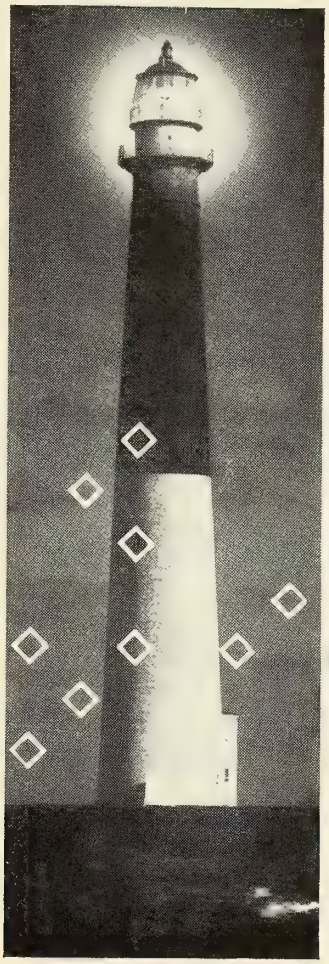


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*Pitt, C.K.: The Art and Science of Artificial Infant Feeding, J.M. Asso. Ala. 19:101 (Oct.) 1949.

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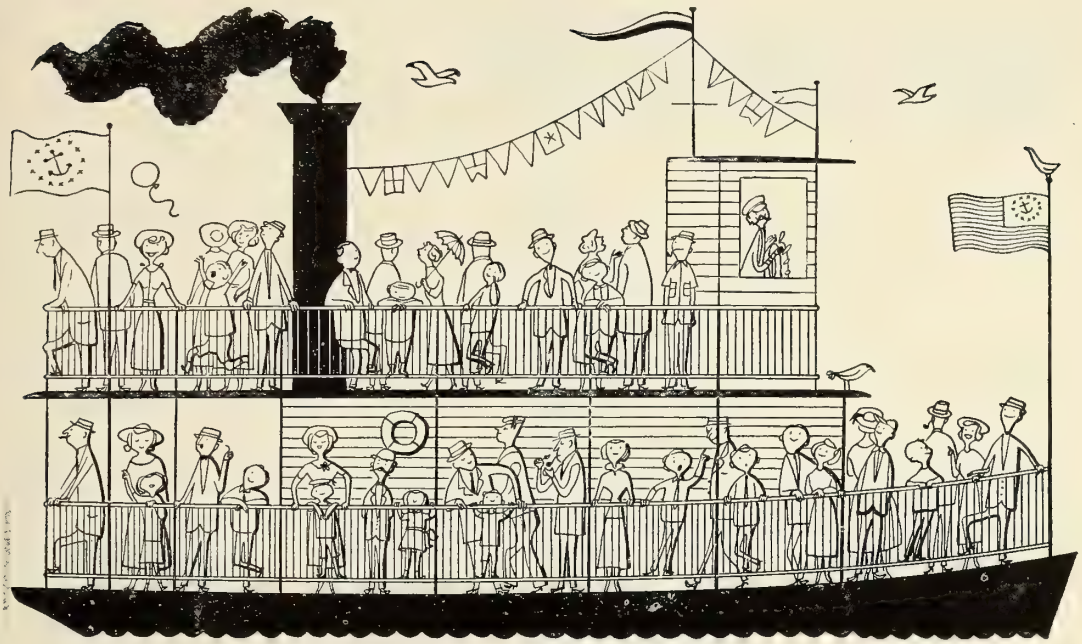
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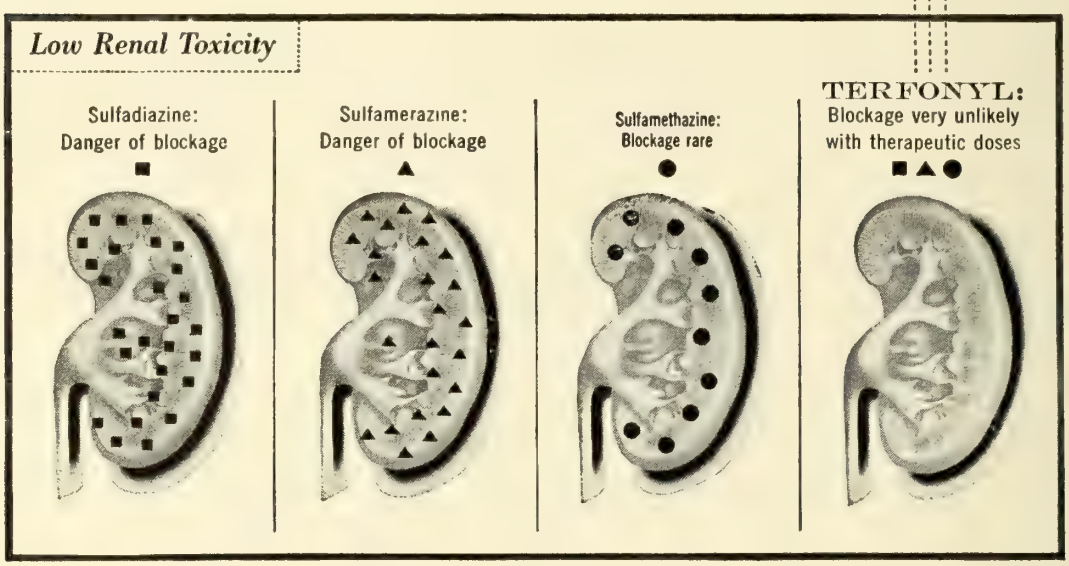
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Harding, F. E.: West. J. Surg. Obst. & Gynec. 52:31 (Jan.) 1944

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Neustaedter, T.: Am. J. Obst. & Gynec. 46:530 (Oct.) 1943.

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Glass, S. J., and Rosenblum, G.: J. Clin. Endocrinol. 3:95 (Feb.) 1943

"General tonic effects were noteworthy and the greatest percentage of patients who expressed clear-cut preferences for any drug designated 'Premarin.'"

Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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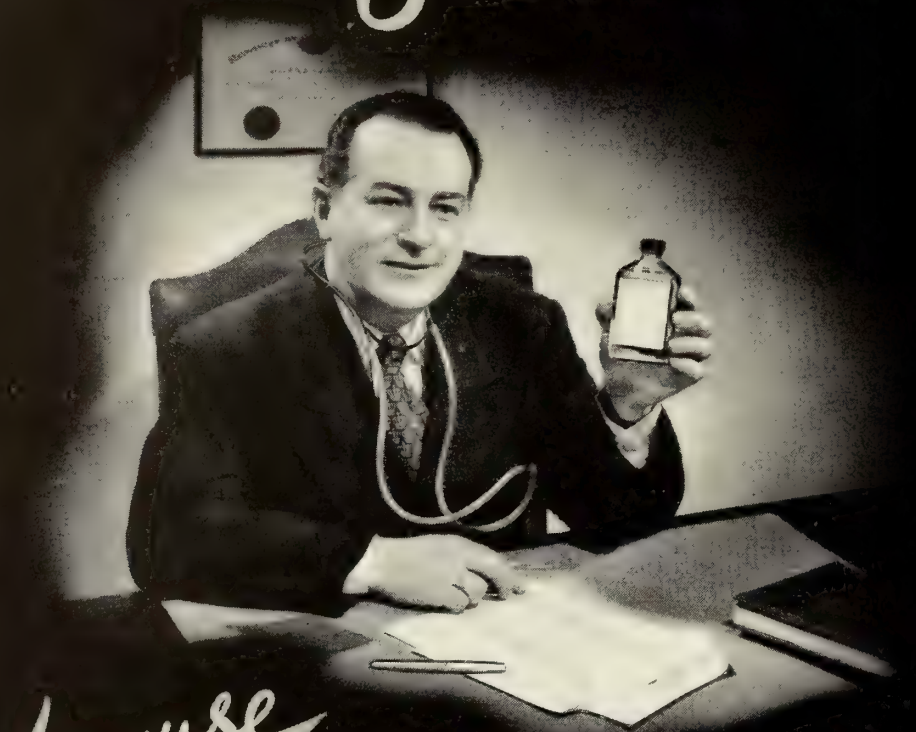
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1. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 5th ed., 1946, 704-705.
2. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 6th ed., 1948, 744.

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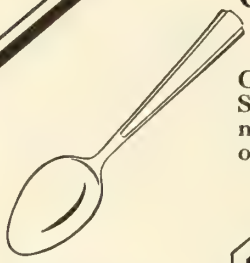
1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

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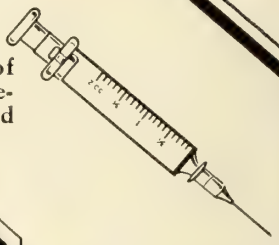
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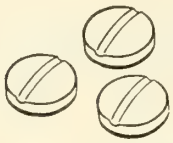
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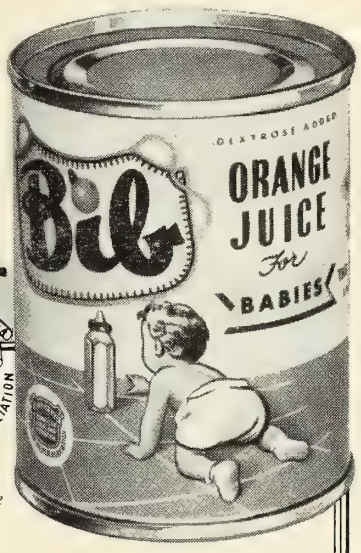


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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 7, NO. 5 MAY, 1950

PRESIDENT'S ADDRESS

DR. ROBERT E. HASTINGS
Tucson, Arizona



Robert E. Hastings, Tucson, Arizona

Dr. Flinn, Members of the Arizona Medical Association and Guests:—

This moment fills me with a great deal of pride. I only hope that I may be able during the coming year to merit the confidence you have manifest in me by bestowing this honor upon me. Dr. Flinn's fine example and wonderful service to this Association will be difficult for me to continue, but I promise you the best of my ability.

Several things have been running through my mind which I consider warrant our attention at such a time as this. I assume that all of the members of this Association feel that the private practice of medicine and free enterprise are our national heritage, but so much criticism has been directed at the medical profession that I feel that our position as doctors should be analyzed.

In frequent discussions, not only with doctors, but also with lay friends and patients, it has been pointed out to me that not enough emphasis has been placed on public relations as it affects each of us individually and collectively. The fact stands out that the general public is not entirely satisfied with medicine as it is often presented to it. Although most physicians are obviously appreciated, or even admired, the shortcomings of a few can undermine this vast storehouse of good will. Whenever we hear anyone dissatisfied with physicians' expounding, we can be sure he doesn't mean to imply that there is everything wrong with all of us. What he is trying to ascribe to our group is usually dissatisfaction with one of us as an individual. In other words, what any one of us does which reflects discredit upon himself, really discredits the profession as a whole.

The medical profession is unique in that as a group everything that it does is of vital public concern. The time has long since arrived when our Association must initiate a plan already in effect in many communities or states similar to the one most of us know as the Alameda County plan. The heart of this plan emphasizes the availability to anyone with a grievance against the profession the right and privilege to be heard, and I might add, to be answered.

To my mind overcharging, overtreating and overselling are things our patients have a right to be protected against. The highly publicized

statistics on the increasing costs of medical care of patients covered by the Industrial Commission of Arizona should make us realize that these three faults are not too foreign to our profession. Our Industrial Relations Committee has already recommended steps which, if followed, will do much to preclude a continuation of this criticism. Much good will on the part of the public toward the Medical profession depends on the successful and efficient operation of such a plan.

In Arizona, just as in Alameda County, it should be publicly announced that medical care is available to everyone, a fact which we all know exists, but one of which a large body of our population is seemingly still not aware. The establishment of a Grievance Committee will do much to convince the public that we are sincere.

No profession relishes police work, but one cannot deny that the failure of our profession to regulate itself might do much to stimulate the demand for governmental control. We must enforce upon ourselves even stricter standards of conduct than those heretofore demanded. Not only do I wish to stress the doctor's individual responsibility in promoting his own public relations but also the responsibility of every member of his staff. Courtesy, understanding and sympathy are necessities in the handling of every patient, that he may have no complaint to be voiced abroad and enlarged upon. In this connection, insuring that every patient understands the necessity for, as well as the likely cost of his treatment, is without saying an asset to each one of us. In my opinion this type of conduct by each individual physician and by the Association as a whole is the first requisite of good public relations.

We have all witnessed the enthusiastic acceptance by our patients of our own Blue Cross and Blue Shield plans and the tremendous influence for good will which such plans have produced. My only criticism of these prepayment plans would be that they are now limited in that they do not provide coverage for medical illnesses as well as for the surgical emergencies. Such coverage should soon be available. Furthermore, there are still too many people who do not realize that they are eligible to participate. It is our individual duty to promote wider acceptance of these plans.

Up to this point I have touched only upon our external relations. I feel that I would be remiss if I did not at least mention our internal relations. I am particularly close to the Pima County Society. I believe that on the whole we members of that group think alike on most subjects commonly called controversial. I believe that at the present time more members of our County Society are actively interested in policy and administration than at any time since I first became a member. I regard this as an important indication that all of us are genuinely sincere in our desire for unity, not only as a County Society but as a State Association. I should like to take this opportunity to compliment Dr. Flinn on his interest in the individual County Societies. As never before a State president has given a sizeable segment of his time to fostering closer relations within each component county group, and within the State Association itself. The problems of each County Society are the problems of the State Association and no County Society should be an isolated unit to shift for itself. So too, the business of the State Association is your business. Take an active interest in it and it will be rewarded in a better unity — a structure that will be unassailable.

During the coming year I am going to need the cooperation of each one of you in order that this State Association can not only remain your Association but can represent the things in organized medicine which you wish it to portray.

MICRONIZED STILBESTROL WITH B COMPLEX VITAMINS FOR ESSENTIAL DYSMENORRHEA

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PAINFUL menstruation is said to be primary or essential when it occurs at or shortly after the menarche, presumably at the first menses following the first ovulation. Dysmenorrhea is secondary when it develops in relation to some pelvic disorder such as inflammation or tumor. There are some cases of dysmenorrhea occurring later in life and after the patient has had one or more children where the cause of the painful menses cannot be found, but such cases are relatively uncommon. In this article, we are concerned only with essential dysmenorrhea. While psychic factors play an important part in many such cases, dysmenorrheic cases whose etiology is mainly psychic must be ruled out.

Several recent writers have advocated the use of diethylstilbestrol in dysmenorrhea. Some recommend fairly small doses while others use relatively larger dosages. Greenhill[1] is one who has obtained good results with fairly small doses. He advises one 1 mg. tablet every night for 20 nights beginning three nights after a menstrual flow starts. He states that the 20 tablets are to relieve the pain which would occur at the time of the next menstrual flow. The rationale of this therapy is that the hormone suppresses ovulation but not menstruation, and it is a common observation that with rare exceptions only women who ovulate have dysmenorrhea and that women who do not ovulate do not have dysmenorrhea. The patient is asked to repeat this treatment for two and sometimes three menstrual cycles and then stop a month. Greenhill adds that this treatment by no means offers permanent relief although it relieves the pain in a large proportion of patients.

Sturgis and Albright[2] in 1940, showed that it now seems possible to convert an ovulating cycle into an anovulatory one by administering estrogens in adequate dosage in the early part of the cycle and often such inhibition of ovulation brings about relief from pain with the next flow. They obtained success in every one of 25 cases of primary dysmenorrhea using injections of estrogenic hormone.

From the Menstrual Disorder Clinic, Research Division, Jefferson Davis Hospital, Houston, Texas.

Haus, Goldzieher and Hamblen[3] claim that one of the most striking characteristics of functional dysmenorrhea is its invariable correlation with a progestational endometrium or an ovulatory type of basal temperature curve. On this basis, it has been concluded that ovulation is a prerequisite for dysmenorrhea and treatment aimed at the suppression of ovulation has been undertaken. Some were given 2 to 12 injections of estrogen. In one series 77 per cent were pain free. Others were given diethylstilbestrol orally with similar results. All ovulatory cycles were accompanied by severe pain save in one instance in which an early progestational endometrium was associated with no pain. The response was better with moderately large doses than with small ones. Of 33 patients treated with less than 20 mg. of diethylstilbestrol, 36.4 per cent obtained total relief. Of 17 patients treated with 40 to 60 mg., 72.7 per cent obtained total relief. The same writers go on to state that the presence either of progesterone or of its physiologic effects is a prerequisite of dysmenorrhea. Although it is initiated by progesterone, other details of the pathogenesis of dysmenorrhea are unknown. Endometrial biopsies were taken in these studies. The successful cases showed an estrogenic endometrium while the failures showed a progestational one.

Novak[4], commenting upon Sturgis and Albright's results, states that in a considerable number of cases in which he has employed that method, the relief from pain has been quite complete. However, a more effective plan than that mentioned above and the one which he has employed on most of his cases is the administration of 1 mg. doses of stilbestrol (apparently parenterally) daily for 12 days beginning on the third day of the cycle. He goes on to state that unfortunately the benefits from this treatment do not extend beyond the next succeeding period. Even this temporary relief is a boon to the patient who has come to dread the advent of menstruation because of the severe suffering it entails and those in whom the dysmenorrhea is very severe would no doubt prefer to have a short series of injections repeated from time to time

rather than suffer the menstrual pain. Aside from this, the psychic lift given by this treatment in getting the patient out of a pain groove and the beneficial effects of the estrogenic substance when this is used in promoting uterine development, are not unimportant considerations. The fact remains, he states, that a plan of treatment based upon the constitutional psychogenic considerations which have been discussed, will rarely fail to benefit the patient and at least make her life a tolerable one. Those who approach the problem along these broad-gauged lines will not find frequent need for the more radical procedures such as presacral neurectomy (sympathectomy) or even hysterectomy.

A new theory concerning essential dysmenorrhea has been advanced by the author in the Special Menstrual Disorder Clinic, Research Division at Jefferson Davis Hospital, Houston, Texas. It is believed that for thousands of years a woman had a baby every year. She was usually pregnant 9 months, nursed her baby 7 to 9 months and as soon as ovulation recurred, she became pregnant again. Due to the customs of our present civilization, pregnancy usually does not occur early in most patients ,and so the uterine muscular cells are not saturated with large and increasing amounts of chorionic gonadotropin (APL), estrogenic, progesteronic, and lactogenic hormones, and so do not become mature. The uterine muscles are so saturated with these hormones during pregnancy that they become "mature" and so are able to carry on the normal physiological function of milking out—so to speak—the menstrual blood and debris within the uterine cavity at menstruation after pregnancy.

Is it one hormone, a combination of some or all of the hormones of pregnancy that are responsible for eliminating essential dysmenorrhea after delivery? In order to find an answer to this question, progesterone, lactogenic and APL hormones were given to six patients with negative results. In gratifying contrast to this, treatment with large doses of a special synthetic estrogen (micronized stilbestrol with B complex vitamins, vitamin C and folic acid)* was used. This medication comes in 25 mg. tablets, each scored in four parts, which makes it easy to increase ¼ tablet when instructed to do so. This is a particularly pure and potent product. By triple crystallization, impurities have been eliminated. The particles of micronized stilbestrol are 0.5 micron in size (a red blood corpuscle is 7.5 microns), so they can easily pass between the gastro-intestinal cells and into the blood stream. The added B complex and vitamin C helps to prevent the toxic reactions experienced by the patients and also makes the action of the diethylstilbestrol more certain. Jailer[5] has shown that diethylstilbestrol is ineffective unless folic acid is present. Patton[6] reduced vomiting in women sensitive to diethylstilbestrol by two-thirds by means of intravenous pyridoxine.

* Desplex, Grant Chemical Company, New York.

Large and increasing doses of micronized stilbestrol with B complex and vitamin C were given to 30 patients with essential dysmenorrhea. The treatment was continued over a period of from 6 weeks to 9 months. In contrast to other gynecologists cited who used moderate doses in order to inhibit ovulation but not menstruation, large dosages were used with the purpose of keeping the patient amenorrheic—producing a sort of pseudopregnancy. This was done in order to recondition or mature the myometrium. Apparently estrogen conditions the myometrium in some way so that it functions without an expression of so much pain at each menstrual period. The results have been most gratifying. Four patients have been followed for 5 years, five for 4 years, four for 3 years, none for 2 years four for 1 year and four for 6 months. Eighty per cent of the patients showed improvement.

DOSAGE OF DESPLEX USED

For 3 days— ¼ tablet given at 9 P. M.
For 3 days— ½ tablet given at 9 P. M.
For 3 days— ¾ tablet given at 9 P. M.
For 3 days—1 tablet given at 9 P. M.
For 3 days—1¼ tablets given at 9 P. M.
For 3 days—1½ tablets given at 9 P. M.
For 3 days—1¾ tablets given at 9 P. M.
Then —2 tablets given at 9 P. M.

(If spotting or bleeding ever occur 2 to 4 desplex tablets are taken every 15 minutes until they stop.)

Hold the dosage at 2 tablets daily until the desired results are obtained. This usually requires 6 weeks to 9 months according to the severity of signs and symptoms. If the patient has severe intractable dysmenorrhea, increase the dose to 4 to 8 tablets daily and keep her on this dosage for 6 to 9 months.

In order to prevent or minimize reactions, it has been advisable to administer 1 to 5 c.c. of soluble B vitamin intravenously and 50 to 150

mg. of testosterone propionate intramuscularly on the day of the first night dose of stilbestrol.

If nausea occurs during the course of the therapy, 1 to 2 c.c. of soluble vitamin B is given intravenously to control this nausea or two 10 or 25 mg. testosterone tablets are taken orally every 15 minutes until the nausea is controlled, usually requiring 2 to 6 doses.

To discontinue micronized stilbestrol with B complex, the following is done: Fifty to 150 mg. of testosterone propionate are given intramuscularly. The 25 mg. stilbestrol tablet is decreased as follows: One tablet for 1 night, one-half tablet for 1 night, one-fourth tablet for 1 night, then stop.

Since nausea and/or vomiting can be prevented or minimized by the use of soluble vitamin B intravenously and androgen intramuscularly and by mouth, patients are able to tolerate large and increasing doses of stilbestrol. It has been shown that stilbestrol is inert without folic acid (Jailer[5]) and possibly other B complex vitamins. It is the opinion of the author that nausea and vomiting in many patients under treatment with stilbestrol is caused by the presence of uncombined and/or non-vitaminized stilbestrol in the circulating blood.

RESULTS

Micronized stilbestrol with B complex was given to 30 consecutive patients with essential dysmenorrhea with gratifying results in 80 per cent. Large dosages were used with the purpose of inhibiting both ovulation and menstruation and simultaneously reconditioning the uterine musculature so that all future periods would be as free from pain as possible. This was a different principle from that of previous writers who used smaller dosages which inhibited ovulation but not menstruation and which helped ease the pain of the period immediately following the medication only. None of the patients in this series were entirely relieved of their cramps and discomfort after the cessation of treatment but the improvement was far better than we have obtained previously by the many antispasmodics and sedatives on the market and secondary only to operative procedures which, however, are now rarely necessary. In the writer's experience, presacral nerve resection has not had to be utilized since the technique of stilbestrol (micronized) with B complex has been employed. Before presacral sympathectomy is considered, the above treatment should be carried out. In the rare cases of failure, the operation may be indicated.

The treatment described in this article has the advantage over most other treatments advocated in that it apparently corrects the cause of most cases of essential dysmenorrhea. Most treatments are merely palliative and must be repeated over and over again. Micronized stilbestrol is no panacea for the treatment of essential dysmenorrhea and it is not the entire answer to the problem but is helpful. Many more cases by many other physicians must be reported to obtain the real value of stilbestrol. When dosages advocated in this series were used we were unable to find any harm from the micronized stilbestrol by many and repeated laboratory tests and repeated cancer smears. After the cessation of treatment the patients menstruate regularly every month as determined by basal temperature and endometrial biopsy.

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ENDOCRINE CONCEPTS OF GYNECOMASTIA

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WE so often hear John Hayward's famous proverb, "Ye cannot see the wood for the trees," little realizing how applicable it is to our daily practice of medicine. Due to the ever-increasing advancement in our therapeutic approach to disease, as well as the many new pathological entities that have recently been discovered in medicine, we sometimes lose sight of the basic physio-pathology and chemistry that characterizes the disease processes. In discussing the syndrome of gynecomastia, aspermatogenesis without A-Leydigism and a high Follicle Stimulating Hormone (FSH) titre, first reported in 1942 by Kleinfelter[1] and his associates of the Massachusetts General Hospital, I would like to take up mainly one aspect of this syndrome, namely, true gynecomastia, and to correlate the clinical observations with our endocrine concepts of its etiology.

Gynecomastia perhaps was first mentioned in the Bible, but it was only infrequently noted until the 19th century. During World War Two, an incidence of 6.9 to 8.69 in otherwise apparently normal males, out of every 100,000 entering the navy was reported by Webster.[2] True gynecomastia is usually characterized by being unilateral in onset. Melville[3] reported the incidence as high as 87% in a review of the material at Johns Hopkins. Involvement of the second breast may be delayed as long as two years. When bilateral, the breasts are not necessarily equal in size.

On palpation, a plate-like nodule usually 2-3 cm. in diameter and of glandular consistency is felt under the nipple, which occasionally may increase to such a size as to assume the appearance of a female breast. It may be painful. Secretion can sometimes be expressed but it is not milk, for, although microscopically there is proliferation and multiplication of the ducts, there is no true acinar formation. Histologically, it is nearly analogous with the so-called fibro-adenoma of the female breast.

Minor hypertrophy is often overlooked and for this reason in any male patient in whom it is suspected, careful palpation must be practiced.[4]

Read by invitation April 25, 1949, before the staff of Good Samaritan Hospital, Phoenix, Arizona.

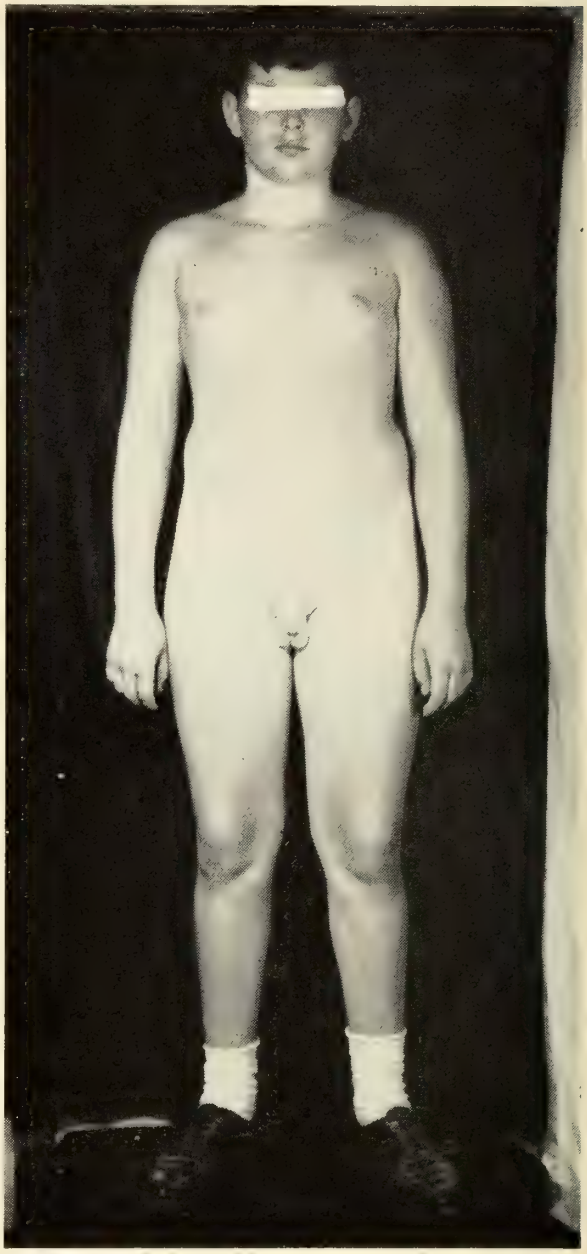


Fig. 1. Adolescent Gynecomastia in a 13-year-old boy, demonstrating moderate obesity and slight retardation in sexual development.

Gynecomastia is probably due to either a relative or absolute excess of estrogen circulating through the body or an abnormally low threshhold of the end organs, or perhaps is due to inhibin, or "X" hormone[1], the so-called second hormone of the testicles.

Man being bisexual and coming under the in-

fluence in utero of extraneous hormones, it is not too difficult for us to understand the hypertrophy of the male breast seen at birth which is due, primarily, to excessive physiological stimulation of the foetal breast by estrogens freely passing the placental barrier.

At the other extreme, we often see spontaneous gynecomastia at the male senescence which may or may not be of a permanent nature and which is looked on as a failure of testicoids so that there is a relative overriding of gynecoid stimulation.

Adolescent gynecomastia, which may be noted to some degree in most boys at puberty[5] (the so-called Frohlich type should not be mistaken for it. See Fig. 1), is at the present time not perfectly understood. It is believed that the adrenals or testes may be secreting abnormal amounts of estrogen-like substances or there may be a disturbance in FSH and ICSH ratio due to an androgen-inhibin inbalance. In nearly every instance, there is a return to normal male breast contour within a short period of time. It is therefore imperative to recognize pubescent gynecomastia and not to treat it with hormones, as these in turn can accentuate and perhaps permanently create a pathological condition which would otherwise have regressed. Surgery is, of course, entirely irrational. It must not be overlooked that there is a small group of patients who show at this stage signs of testicular failure.[6] They require other management. (Figs. 2 and 3.)

Our understanding of the effects of estrogens on the male have been clarified since Huggins[7] and his group's classical work on the effects of large doses of estrogens on metastatic carcinoma of the prostate, which has since been confirmed by many others.[8, 9] It has been noted by all of us interested in this field that there may be a striking degree of gynecomastia as well as darkening of the areolar and nipples, which is explained on a basis of overstimulation of estrogens. It might also be pointed out that Nelson[10] has shown by repeated biopsies during stilbestrol treatment that there is a decline in the apparent activity of the interstitial cells of the testes.

It is perhaps not realized that androgens as well as estrogens can stimulate the breast. The effects of the former were noted originally by Warren Nelson[11] and H. Selye[12] in animal experimentations and by Hamilton[13] in treating a

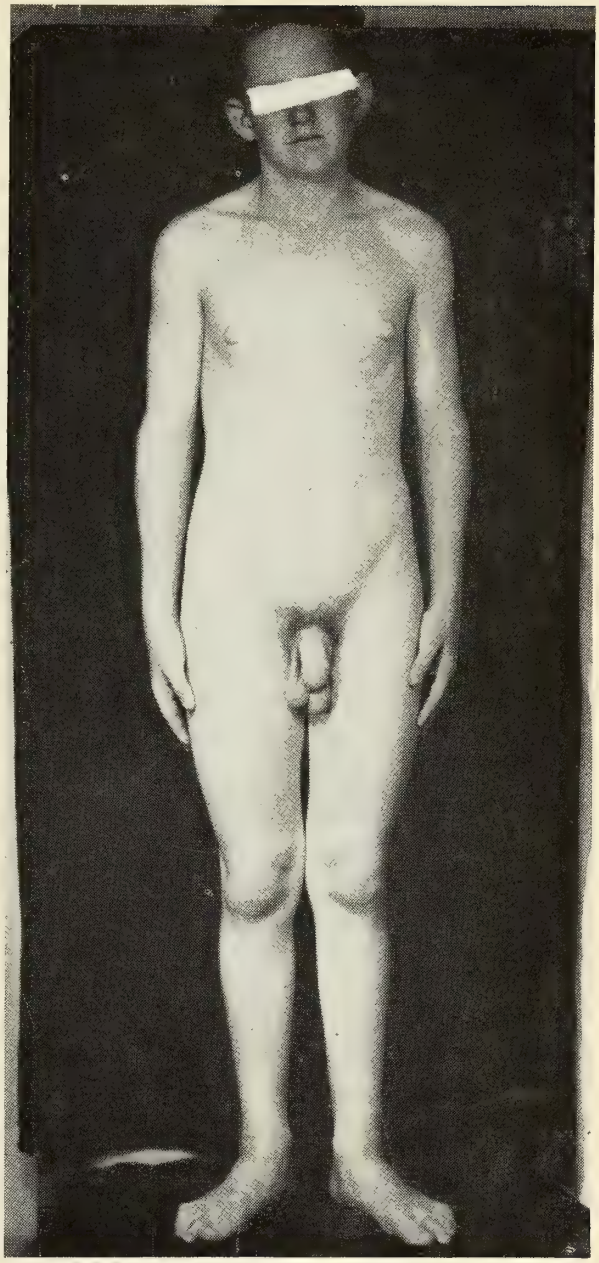


Fig. 2. Gynecomastia in a 13-year-old boy who shows normal secondary sex characteristics. 17 ketosteroids—5.8 mg./24 hr.; FSH—105+ m.u.

hypogonad patient with testosterone propionate. This was soon confirmed by Kenyon[14] using plain testosterone alone. McCullagh[15] showed that gynecomastia could be produced using methyl testosterone.

Various tumors involving the endocrine system have at times been associated with gynecomastia. Davidoff[16] in his review on acromegaly reported one case. Hyperthyroidism may on rare occasions cause it, but this can now probably be explained on the basis of liver damage.

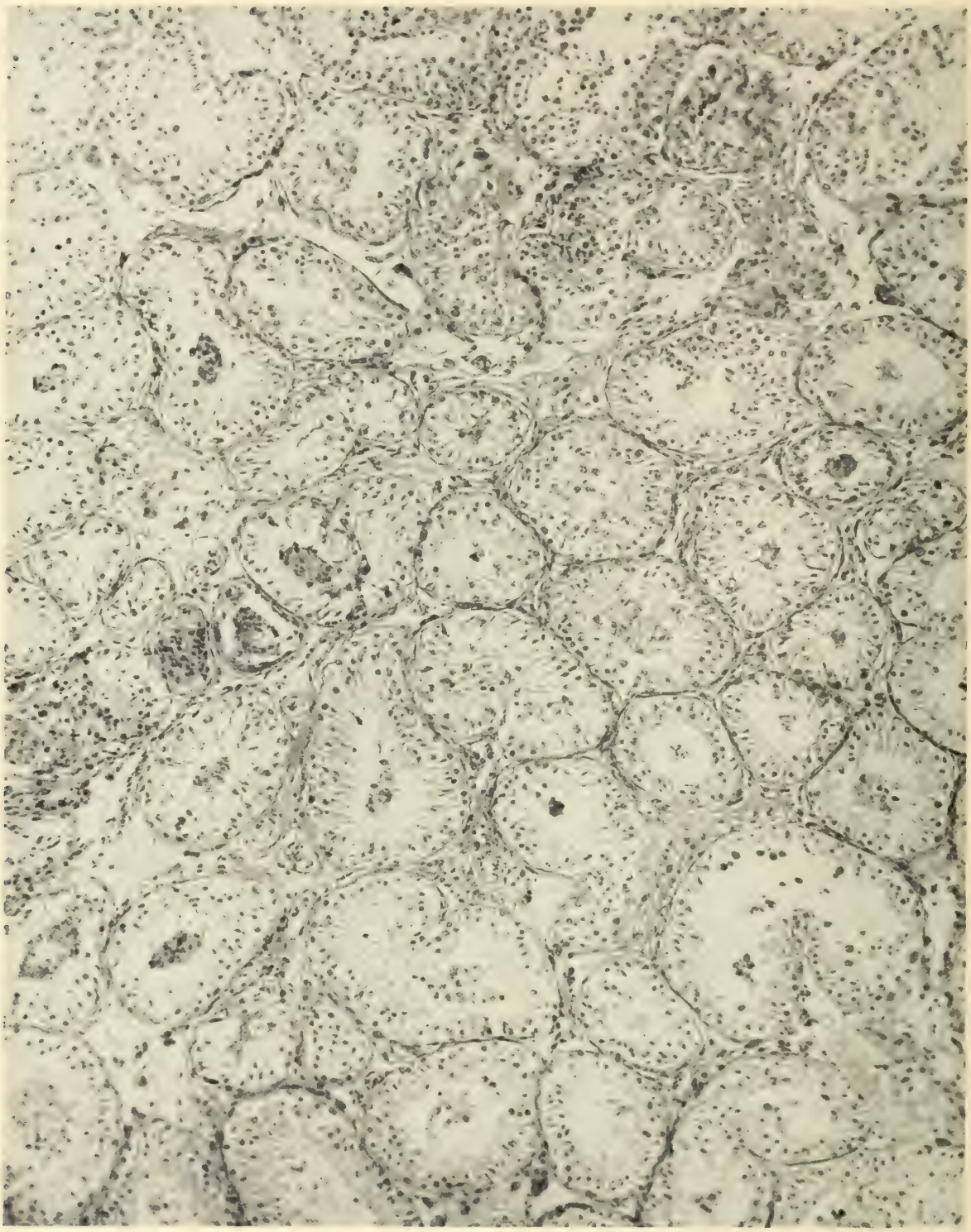


Fig. 3. Microphotograph of testis biopsy of patient in Fig. 2 showing increased hyalinization of the tunica propria, and tubules consisting mostly of Sertoli cells with no secondary spermatocytes or spermatozoa.

Twelve cases of gynecomastia due to a feminizing type of adrenal tumor have been reported,[17-26] the last being a boy of five years of age. In the few cases where hormone excretion levels studies were done, a large increase in the titres of estrogens were reported. Desoxy-corticoster-

one acetate may cause gynecomastia.[27] Chorioepitheliomas of the testicle[28] or of extra gonadal origin[29] are sometimes associated with gynecomastia, as are seminomas,[30] teratomas,[31] adrenal rest[32] and interstitial cell tumors.[33]

Chronic debilitating diseases seem to produce breast changes through their effects primarily on the liver. A triad of findings had been noted by Silvestrini[34] and later by Corda,[35] namely, gynecomastia, testicular atrophy and Laennec's cirrhosis, the syndrome of which carries their name. Eppinger[36] has added to this triad the loss of axillary hair. Edmonston, Glass and Soll[37] explained these phenomena on the basis of estrogen stimulation as 8 of their 14 patients with cirrhosis were found to excrete large amounts of free estrogens and 85% of the injectable estrogens were recoverable in the urine.

Gilder and Hoaglund[38] have found that in acute infectious hepatitis there is an increased excretion of urinary estrogens while the ketosteroids are decreased. It had been suggested by Dingemanse and Laqueur[39] in 1937 that there was a very efficient mechanism for inactivating estrogens. Silberstein, Engle and Molnar,[40] as well as Zondek[41] reported that the liver in vitro inactivated estrogens.

Israel and his group[42] in heart-lung-liver preparations were able to demonstrate that the inactivation took place after the blood came from the liver. Numerous authors[43-53] have compared the effects of estrogens which have circulated through the liver with those which have bypassed the portal circulation and their results have indicated that both natural and synthetic estrogens are inactivated by the liver in vitro. A dietary deficiency, such as B complex,[54-56] decreases the ability of the liver to inactivate endogenous or exogenous estrogens. This ability to inactivate probably depends on two enzyme systems and the conversion of estrone to estriol as well as an adequate protein intake.[57] Gyorgy[58] and Unna et al[59] showed that in animals kept on a low protein diet, the inactivation mechanism of the liver is interferred with, and that replacement of methionone and choline in the diet restored the ability of the liver to inactivate estrone. Jailer[57] has evidence indicating that if a high enough protein intake is maintained, a Vitamin B deficiency as such will not limit the liver's power to degrade estrogens.

Tepperman[60] has suggested that since the cholestrol content of the adrenal gland is largely in the esterfied form, and since this is presumed to be one of the precursors of adrenal corticoids, a diseased liver might lead to a decrease in the production of corticoids due to inability to esterfy cholesterol. Another possibility suggested is that a high level of estrogen in the blood may depress adrenal function. I[61] have pointed out that the low blood cholesterol of the newborn may be due to the depressant action of the maternal estrogens. From all of this, vide supra, we may conclude that in any damaged liver there is interference in the interconversion of estradiol and estrone and their conversion to estriol as well as the formation of inactive oxidative products from estrogens ,and the conjugating of estrogens for inactivation and excretion. It, therefore, follows that any decrease in liver function in the male would be followed by an accumulation in the blood of free estrogen, and their appearance in appreciable amounts in the urine. There is a suppression of spermatogenesis as well as estrogenic stimulation of the target organs, especially the breasts. The Leydig cell steroid secretion is decreased due to the depressant effect of circulating estrogens. This in turn calls for an increased LH production. This latter hormone is thought by the author, to depress the output of only the 17 ketosteroid fraction of the adrenal thru blockage of one factor of ACTH. This would satisfactorily explain the loss of axillary hair as well as the decreased urinary 17 ketosteroids without giving rise to adrenal S hormone insufficiency.

It is, therefore, apparent why any type of hepatic damage brought about by cirrhosis,[62] cordectomy,[63] mediastinal tumors,[64] chronic ulcerative colitis[65] or metastatic liver lesions increases the circulating estrogens and so may result in gynecomastia.

It is perhaps fitting at this moment that we consider the question, "Does the testicle secrete a second hormone?", for it is used by some to explain adolescent gynecomastia and by others to help in an understanding of this syndrome presented here tonight.

The original investigation along these lines was done by Fellner[66] in 1921 who noted an increase in uterine weight of castrate guinea pigs following injection of bull testis extract. Mottram and Cramer[67] in 1923 found that following X-ray irradiation or experimental cryptorchidism, the Leydig cells and accessory male organs were spared while the germinal epithelium was

destroyed. The anterior lobe of the pituitary showed castration cells. Martins and Rocha[68] were able to demonstrate that aqueous testicular extracts were able to prevent the castration changes as well as lower the high gonadotropin levels. McCullagh and Walsh[69] confirmed this and called the water-soluble non-androgenic hormone of the testicle "inhibin", the supposition being that it was secreted by the germinal epithelium. They further noted that its only effect on the prostate and seminal vesicles in normal rats was atrophy. It is argued that since the tubules in cryptorchids atrophy months before changes are noted in the Leydig cells, and that this is correlated with the appearance of castration cells in the anterior pituitary while atrophy of the prostate or seminal vesicles appear to be associated with change in the interstitial cells, that atrophy of the interstitial cells may therefore well be due to a lack of stimulation of Luteinizing Hormone (LH) or Interstitial Cell Stimulating Hormone (ICSH) in the male, by inhibin. It was also brought out by Tornblom[70] that the administration of testosterone to young castrated male rats did not prevent the usual pituitary hypertrophy following operation. Tornblom isolated from the testicle a fraction which, when given to young castrated rats, prevented or inhibited the weight increase of the pituitary. Larger doses had the opposite effect. The active fraction appeared to have for the most part the characteristics of estradiol.

It had been demonstrated as early as 1938 by Laqueur and DeJongh[71] that the human testis contained estrogen. Because of the marked fall in urinary estrogen levels following castration for prostatic cancer, Scott and Vermeulen[72] conclude that production of estrogen in the male was mainly in the testis. Both experimental and clinical evidence, although far from complete, would suggest that estrogens may be secreted by the sustenacular cells of Sertoli.[73] In ovarian arrhenoblastomas, the percentage of Leydig cell predominance undoubtedly accounts for the degree of virilization;[74-76] whereas when the tumor is composed solely of Sertoli cells, it has been found by Teilum,[77] that it causes feminizing effects due to its estrogen production. Witchi and Mengert[78] in their studies on a human hermaphrodite of feminine appearance, who had testicular like gonads, showed that following removal of the gonads there was complete disappearance of estrogens from the urine. Histological examination of the gonads showed a complete absence of ovarian cortex. The interstitial cells were quite small and histologically appeared inactive; while the Sertoli cells were highly developed and appeared to be intensely active. It has been noted that the Sertoli cells contain lipoids as do other steroid producing cells.[79] It has also been argued that since estrogens are produced by the granulosa and theca cells, therefore, in the male, the "X" hormone is produced by the Sertoli cells. Whether the water-soluble extract inhibin is an estrogen will have to await more scientific data.

It has long been noted that it is possible to reduce high FSH titres in the climacteric in the female by the use of estrogens, but it has been repeatedly demonstrated that in the cases of hypogonadism in the male, that the urinary FSH cannot be brought down to the normal level by the usual therapeutic dosage of androgens which is evidenced by normal titres of 17 ketosteroids and clinical evidence of masculinization.[80-83] Excessive doses of testosterone can do this. In comparison, stilbestrol in the primary hypogonad male in therapeutic doses does markedly lower the urinary FSH titre.

These facts are offered as further proof by McCullagh[84] of a second testicular hormone, inhibin, in that it has pituitary inhibiting powers similar to that of estrogen. In the human, two factors may lead to the production of high titres of urinary gonadotropins: first, castration or severe total testicular damage; second, oligospermia in some cases of which there may be no evidence clinically of an androgen deficiency and the 17 ketosteroid excretion is within normal range. In this latter case, the high gonadotropin level could not be looked on as due to Leydig cell failure alone, but possible inhibin deficiency. In clinical practice, one sees individuals with cryptorchidism who possess normal masculine external genitalia, build, voice, beard and a normal prostate and who have the typical dynamic aggressiveness of the male. Their 17 ketosteroid levels are normal. Biopsy reveals complete atrophy or little tubular tissue present and their FSH levels are extremely high.

Warren O. Nelson and C. Heller[85, 86] refuse to recognize the possibility of a second hormone, although admitting the above evidence, and have championed the idea that it is due to the different threshhold response of the target organs to varying amounts of androgenic substances. In the process of spermatogenesis, there is inactiva-

tion of gonadotropic hormones, probably FSH. When tubular failure ensues, there is a rise in the gonadotropin titre. It is also thought by these investigators that Leydig cells may also inactivate gonadotropins, and although they may appear to be numerous as in Kleinfelter's syndrome,[1] they show evidence histologically of being inactive so that high gonadatropin titres result. Whether specific tissues inactivate hormones or act only in the capacity of a catalyst is still a moot question.

The following case* of gynecomastia presents superficially the appearance of a Kleinfelter Syndrome, the variations of which will be discussed vide infra.

CASE HISTORY

A 35-year-old white Syrian male, N. S., was first seen March, 1948, complaining of left gynecomastia of three months' duration. The patient was the second of seven siblings, only one of which was a male. It was noted at delivery that the left testicle was down and the right was undescended. His childhood was normal. There was no history of orchitis or injury to the testicle. Masturbation was practised at twelve. At fourteen, pubic and axillary hairs were first noted. During the next few years he had frequent nocturnal emissions and had intercourse on several occasions. At the time of his marriage in 1938, he noted that his testicle was very small and the right one had never descended. He had not as yet shaved although his voice was apparently deep. His head hair was very heavy and showed no sign of angle recession. In 1941, a cryptoropexy was done; a very small right testicle was liberated from the surrounding tissues and was brought down into the scrotum a distance of 3½ inches. Two weeks following the operation, the testicle could no longer be palpated. One month following the operation, the left breast enlarged and remained that way for two months. It was slightly tender but did not show any evidence of secretion, nor was there a change in pigment. In 1946, there was again a recurrence of the swelling in the left breast without any history suggestive of its cause. By 1947, the breast had returned nearly to normal. In May 1947, the right breast suddenly increased in size and a simple mastectomy was done. In January 1948, it was again noted that the left breast was swollen and slightly tender.

He has only shaved about every two weeks. Libido has been fair. The patient was rejected for military service because of a psychoneurosis and hypertension. There was no other member of his family, immediate or distant, who presented a similar sexual picture.

*I am indebted to Dr. P. Dysart for referring this case to me.

Physical examination revealed a thin, Syrian male who appeared to be about 15 years younger than his stated age. (See Figs. 4-5) The skin was slightly pale. The head hair was heavy, showing no evidence of recession. There were a few hairs on the chin and sides of the face. The axillae had a moderate amount of hair. The thyroid cartilage was not prominent. The voice was deep. The right breast area showed a 7 cm. scar. The left breast was moderately enlarged, nontender and no secretion could be expressed. The areola was small not heavily pigmented. The phallus measured 4 cm. in length and showed a moderate degree of hypospadias. A very slight

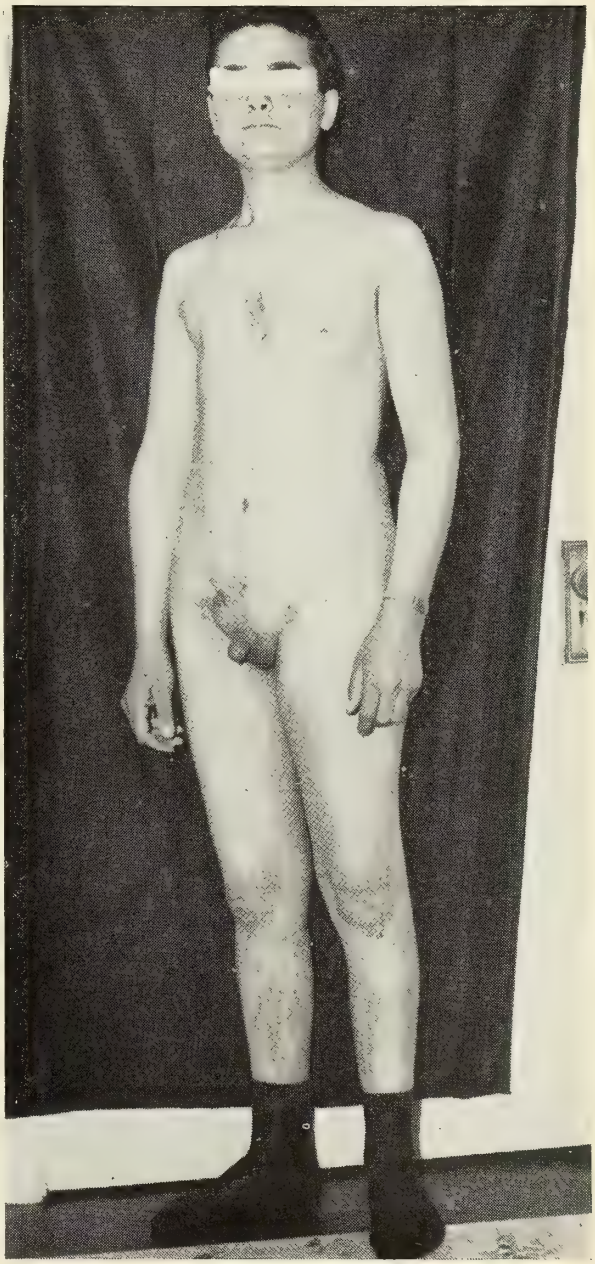


Fig. 4. Patient N. S. showing gynecomastia and hypogonadism.

nubbing was all that could be detected in the region of the prostate. Only the left testicle was present. It was firm and the size of a large coffee bean. His body measurements were: total height 69 inches, the lower height being 37 inches. The span was 71.5 inches. The FSH excretion was 200 m. u. per twenty-four hours, by the method of Albright, Griswold and Kleinfelter. Two determinations of the total neutral 17 ketosteroids were 11.2 and 10.1 mg. per twenty-four-hour specimen. The patient was then stimulated with ACTH* for two days using 40 mg. daily. The 17 ketosteroid output on these days were 14.2 and 15.2 respectively. After having waited until the complete effects of an implant of 375 mg. of testosterone had worn off the 17 ketosteroid values were 8.2 and 7.0 on consecutive 24 hour determinations. He was then given 20 mg. L H*, Armour's, every 6 hours for 2 days. His 48 hour urine during this period showed a level of 5.7 mg. per 24 hours. Estrogen titres were within normal limits. A biopsy of the left testicle showed nearly complete absence of tubular elements. Those that were present were composed mainly of Sertoli cells and had marked hyalinization of the tunica propria. Most of the section was composed of Leydig cells. They showed various degrees of vacuolization as well as absence of chromitin. No recognizable testicular tissue was found on the left side. Re-examination of the tissue removed from the right breast showed the typical picture associated with gynecomastia. (See Fig. 7) Liver function tests were normal. The blood pressure was 160/100. X-rays of the heart showed moderate hypertrophy of the left ventricle.



Fig. 5. Close up of the same patient as in Fig. 4.

DISCUSSION

Although this patient presented the picture of gynecomastia, aspermatogenesis, A-Leydigism, as well as a high FSH, he could not be classified as a true Kleinfelter Syndrome as the gynecomastia was unilateral in onset and appeared fifteen years after puberty following surgical trauma. Kleinfelter et al do, however, concede that the case report of gynecomastia[87] in a soldier of 53 following trauma to the testis, as well as another case[88] of enlargement of the breasts following orchitis in a 22-year-old individual may well be very closely related to their picture. A similar case[89] of gynecomastia which followed mumps orchitis later underwent spontaneous remission.[90] It was pointed out by Heller and Nelson[91] in 1945 that the Kleinfelter Syndrome should be expanded to include cases which showed not only the constant features of (1) small atrophic testis with hyalinization of the tubules and clumping of the Leydig cells, (2) azoospermia, (3) elevation of urinary gonadotropins, but variable features for which they made three subdivisions, i.e., (1) eunuchoidal (2) moderately eunuchoidal or (3) non-eunuchoidal. When gynecomastia was present, the onset of enlargement was noted at puberty and was progressive for several years and then remained stationary. This would exclude our case from their broadened classification. They maintain that the 17 ketosteroid excretion pattern is closely correlated with the clinical picture and in those hypogonadal cases where it is normal or slightly elevated, they postulate the presence of inactive steroids.

This same type of reasoning has been used by Buxton,[92] regarding progesterone, in trying to explain the fall in basal body temperature curves during the fourth to fifth months of gestation. There appears to be little in the way of scientific facts to bear out this assumption.

*I wish to gratefully acknowledge the generous supplies of ACTH and LH furnished me by Dr. J. Mote of Armour & Co.



Fig. 6. Photomicrograph of a biopsy from left testicle of patient N. S. showing overwhelming predominance of Leydig cells with tubular elements composed mostly of primary spermatogonia and Sertoli cells.

There is evidence of males[93] with very low 17 ketosteroids who do not clinically show signs of gonadal or adrenal hypofunction.

Although there is, in our case, a moderate decrease in 17 ketosteroid production, there is clinical evidence that androgenic failure has been



Fig. 7. Photomicrograph of section of the right breast.

well marked since puberty as demonstrated by his low hair line, sparse beard, poor skin color and muscle tone, small prostate and penis, and eunuchoidal skeletal proportions. According to Heller and Nelson's[94] classification of male hypogonadism, this patient should be placed in their class 4, i.e., "Pubertal Seminiferous Tubule Failure." He fails, however, to conform as noted vide supra. Besides Benard's case,[89] there are others[95] where the gynecomastia has undergone regression—either spontaneously or presumably by medical induction. Although the

interstitial cells in these patients are so numerous as to be taken for a true adenoma, it is felt that this does not represent an actual increase in the number of Leydig cells, as is contended by Howard et al,[96] but is merely the accumulation of interstitial cells in a small area, due to degeneration of the tubular elements. It has been pointed out by Sargent and McDonald[97] how inadequate are our quantitative estimates of Leydig cells.

Some of the Leydig cells, in our case, show histological evidence of lowered function as portrayed by degenerative changes. This is borne out by the physiological attempt to stimulate steroid production with Armour's L H which resulted in failure and some suggestion of even a decrease. After two days of excessive replacement therapy with testosterone propionate, there was a definite fall in steroid output which is looked on as a further failure of the interstitial cells bearing out Selye's theory of compensatory atrophy[98], as substantiated previously by the findings after the use of cortisone[99, 100] and in our case by the lowered 17 ketosteroids after implantation. These observations should perhaps cause one home hesitancy in the use of large doses of androgens.[101, 102]

The response of the "N" hormone of the adrenal to ACTH was excellent, this in the light of a failure of an increase in excretion of ketosteroids after LH, would point to some reciprocal action of the "N" hormone of the adrenal and LH and perhaps ACTH. This is the process of investigation.

It is thought that the condition of this patient can best be explained on the basis of a poor androgenic function at puberty with subsequent tubular degeneration and that the 17 ketosteroid production of the adrenal is held down by an increase in LH. This would have to bring into play two ACTH hormones, evidence of which is slowly accumulating.[103] The reasons for the gynecomastia are still too poorly understood for the author to try and present an answer except to suggest that the regression and growth probably is due to changing threshold responses of the breast tissue to circulating androgens, as it would appear from the estrogen titers of this patient as well as the other cases of Kleinfelter's Syndrome that there is no change in the estrogen levels.

It is only by careful study in nature's vast human experimental laboratory, and by making these observations available to others that the etiology of gynecomastia will be clearly understood.

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PAINLESS PROCTOLOGY

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DOCTOR Salsbury, Honored Guests and Esteemed Colleagues:

A visit to Ganado is a privilege that I esteem most highly, particularly when it brings the opportunity of participating in another of the clinical conferences originated by my good friend, teacher and colleague, Doctor Harlow Brooks.

My subject is "Painless Proctology," and I assure you it gives me great pleasure to speak about pain, particularly when I can do so in an impersonal way. Strange indeed it is how philosophical one can become about such a distressing thing as pain—always providing it does not involve one personally. Was it not Shakespeare who said, "Was there ever a philosopher with a toothache?" Probably not—at least deponent sayeth not.

Processes of disease are almost invariably associated with discomfort, and often with pain. In this respect, rectal diseases differ from no other, but it is most unfortunate that in the minds of patients, the various methods of treatment of rectal diseases have acquired a reputation for *more* than ordinary pain. Indeed, the average patient actually shrinks in terror, or at least in severe apprehension, at very thought of a rectal examination.

Pain incident to the treatment of disease is always regrettable, but when it is unnecessary it becomes reprehensible. On the basis of a lengthy experience in the examination and treatment of rectal diseases, I can assure you that there *are* methods both of examination and of treatment which are as nearly painless as it is humanly possible to make them. In order to benefit prospective sufferers by proxy, I shall disclose my own views on how painlessness can be achieved in both examination and treatment.

Needless to say, the few moments preliminary to the actual examination or treatment very often determine whether a patient is going to be tense and apprehensive or calm, confident and relaxed. If the patient is ordered preemptorily to assume a certain position without any warning as to what he may expect, it very naturally follows that he is surprised and his sensibilities shocked by having an instrument rudely inserted into an organ that is sensitive even when normal, and far more sensitive when inflamed or damaged. My first advice, therefore, is to explain to the patient that it is necessary to make the examination and that it will be done as carefully and painlessly as is possible.

A few words may be given in passing on the matter of position to be assumed during the examination. I have found the left lateral Sims position to be the most satisfactory, both as to comfort to the patient and accessibility to the examiner. This position will allow the patient to recline in comfort, to be draped properly and to be under no stress from a physical standpoint. There are many who use either the knee-elbow or the knee-chest position, but for ordinary anal and rectal examinations, neither of these is necessary. In the case of sigmoidoscopy, it is naturally desirable. The use of special rectal tables that swivel about and up-end a patient practically without his knowledge or consent offer no more from the standpoint of examination, and they do add much to a patient's discomfort. Any ordinary examining table will suffice.

The first step in any examination of this region is a digital examination. To accomplish this painlessly, one must use generous lubrication. I find that tragacanth jelly is much to be preferred to Vaseline, since its lubricating qualities are not dependent upon temperature. In cold weather, Vaseline can be so viscid as to be practically of no use as a lubricant. The introduction of the examining finger should be made slowly and with due consideration of the anatomical course of the canal. One can readily understand how the sudden, forceful insertion of a finger, ill-lubricated, can give rise to pain. What is often overlooked, however, is the fact that the sudden withdrawal of the finger may just as often give rise to pain. My suggestion, therefore, is that both introduction and withdrawal be done in a slow, even manner. If diseased areas are evident, such as fissure, thrombotic hemorrhoids or other disorder, one should be careful to exert pressure on the wall of the anal canal *opposite* the diseased area, as this

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will definitely lessen the degree of discomfort incident to examination.

Proceeding next to instrumental examination, much depends upon two things. First, the suitability of the instrument in both size and shape. Certainly the old blunderbuss form of anal speculum could not avoid giving rise to pain, because it was too large and much too blunt. It did not accommodate itself either in form or size to the anal canal. On the basis of considerable research, the instrument I am now showing was devised to meet the needs of this examination. It is correct in size, moderate in its taper and completely adequate to anal examination. It is correct in size, moderate in its taper and completely adequate to anal examination. The second factor in making an instrumental examination painless is the recurrent factor of adequate lubrication.

The method of preceding instrumental examination by digital examination in itself insures less discomfort in the actual passage of the instrument because the sphincter has already been dilated by the examining finger and yields all the more readily to the instrument that follows. The same principle applies to the passage of the rectoscope, with this one added admonition: it should be inserted slowly and immediately halted should it encounter any impediment to its passage. This precaution will spare the patient the pain that comes from forcing the instrument against an enlarged prostate or the mass of a tumor, should such exist. Usually, when passing the rectoscope, I remove the obturator immediately after the sphincter is passed, and then advance the rectoscope while looking through it.

Finally, we come to the sigmoidoscopic examination. This, too, *can* be done painlessly, regardless of what diseased conditions exist, if *only* care and consideration be exercised. By the use of my rectosigmoidoscope, the bowel may be inflated *in advance* of the instrument and thus the tip can avoid pressure on its walls to a large extent. After removing the obturator tip, the instrument may be advanced under visual control and further inflation. Here, however, is one point upon which I feel I *must* insist. Beware of over-inflating the bowel. It *can* cause colicky pains and much discomfort.

Should biopsy be required, the use of a sharp, *biting* forceps, such as this biopsy punch I am showing, will be found to be *absolutely painless.* I specify sharp, *biting* forceps because if the bite is not completed before the instrument is moved, there will be a pull upon the bowel wall which will definitely cause pain. The use of the sharp, biting instrument will obviate this. The instrument I show you has its jaws set precisely at right angles to its shank. This will permit great accuracy in selecting an area for biopsy and will greatly facilitate removing it with deftness.

Finally, after every examination or instrumentation of this region, I feel it a matter of sound practice as well as courtesy to leave a small amount of local anesthetic ointment, such as Nupercaine, in the anal canal. This will add much to the comfort of the patient in the few minutes after the examination and will completely obviate the smarting which sometimes follows even a careful examination.

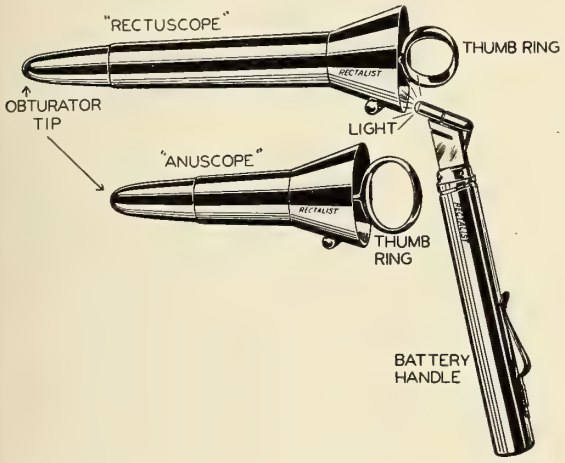
What I have said takes care of all but fistula examinations. These, of course, are to be performed with the utmost care, with a fistula probe. Even then it is not infrequent to strike a sensitive spot. However, if a small amount of Benzocaine in oil is injected into the fistula tract *before* starting the examination, even this pain may be avoided.

Hitherto I have spoken only of pain incident to examination and diagnosis of proctologic ailments. Of course the same principles apply in a general way to the methods of treatment insofar as instrumentation is concerned. However, there is always a possibility of pain incident to treatments, more particularly, surgical treatments involving this area.

With respect to medical treatments, the injection treatment of hemorrhoids, if properly done, should be absolutely painless, and will be so unless an error is made in the selection of the solution, a miscalculation of the amount to be injected or an error as to the site of injection. By now the formula for the solution for the injection of hemorrhoids has been pretty well standardized, and if one of these standard solutions is used, one may be confident of not causing pain. I refer to quinine urea hydrochloride, etalate or sodium morhuate. As to the amount of solution, one may gage by the blanching of the mucosa. As soon as the superficial capillaries are outlined, no further solution should be injected. As to the site of injection, it should never be below the ano-pectineal line. With ordinary care no pain should be attached to topical applications to ulcers in the rectum or sigmoid. Polyps may be removed without anesthesia and without pain since the mucosa at that point is

insensible to pain. However, a sharp snare or an efficient cautery should be used, since any pull upon the sigmoidal wall will give rise to pain.

As a rule, however, it is the surgical and not the medical treatments that have given a bad name to a good specialty. What fiend first contrived the rectal whistle I know not, but he did an ill service to the specialty of proctology. It is chiefly through the use of this totally unnecessary packing that rectal surgery has become feared and famous for its associated misery. Frankly, if a surgeon performs his operation in



a workmanlike manner, tying off all bleeding points before leaving the operative area, there is no necessity for packing and there are many reasons for not doing so. The chief reason is that it induces a tremendous spasm which in itself is the most painful aftermath of a rectal operation.

Many surgeons are in the habit of dilating or stretching the sphincter prior to the operation, and it is my opinion that this procedure is unnecessary and is productive of much post-operative discomfort.

Finally, on the basis of a long and extensive experience with the use of the various anesthetics used in rectal operations, I have come to the conclusion that avertin is by far the safest and the most effective anesthesia to be used. It is quick, and leaves no aftermath of leg pains, as spinal anesthesia sometimes does.

The remarks I have made make no great contribution to the art of physic, but if they prompt a more sympathetic consideration of the patient, a more careful handling of his person, and particularly the diseased part, then I shall feel a worthy contribution has been made. Certainly it is our greatest goal—or should be—to relieve suffering and to cause no needless suffering. By following the methods I have outlined, I am sure that at least the needless suffering may be eliminated. Pain, after all, is the most personal of all human emotions, with possibly the one exception of itching. I once overheard a mother berate her child for scratching. "Why on earth do you scratch yourself so?" asked the lady. To which the little boy replied, "Because I am the only one who knows where it itches." Patients have this advantage with regard to pain. They also know who *causes* the pain. A word to the wise should be sufficient.

ARIZONA MEDICINE

Journal of

ARIZONA MEDICAL ASSOCIATION

Vol. 7 May, 1950 No. 5

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Editorials

AN INVITATION

The Annual Meeting of the American Medical Association will be held in San Francisco June 26-30. During this meeting the House of Delegates of the A.M.A. will be in Session almost every day. Consult your program for the hours. Dr. Edward L. Bortz, the Speaker of the House, has issued an invitation to all members and fellows attending the regular meeting to pay a visit to at least one Session of the House. Much criticism has been leveled at this body over the years, both from within and from without the Association. Attend a Session and see for yourself, the sincerity and deliberation which these men exercise in solving the many problems which confront it each year. You will also witness one of the most efficient systems in existance for expediting and transacting the enormous amount of business which it is required to dispose of each Session.

1950 ANNUAL MEETING

The Fifty Ninth Annual Meeting of the Arizona Medical Association was held at the Hotel Westward Ho in Phoenix, April 30, May 1, 2 and 3. The meeting was successful in every way. An outstanding feature were the various sectional meetings which were held Monday afternoon, May 1. Most of these meetings began with a luncheon and the program followed.

The program for the General Session was very well attended. The four guest speakers, Doctors John M. Waugh of Rochester, Minnesota; Harry B. Macey of Temple, Texas; Stephen R. Elek of Los Angeles and George C. Griffith of Los Angeles, added much to make the program interesting and instructive. There were nine papers presented by members of the Association.

The Council Meeting was held on Sunday and lasted from 10:00 a. m. to 5:00 p. m. Much routine business was transacted. It was decided to proceed with the incorporation of the Society. The revision of the Constitution and By-Laws was thoroughly discussed and submitted to the House of Delegates. The Treasurer presented the budget for the ensuing year. The Medical Defense Fund came in for much discussion also.

The two meetings of the House of Delegates were especially well conducted under the new system and much constructive criticism resulted from the deliberations during the first session on Monday. The routine reports of the officers and boards were presented and all new business was introduced in the form of resolutions. All resolutions were referred to the Committee which was appointed by the Speaker on the opening day. Dr. Harold W. Kohl, Tucson, was Chairman of the Committee and was assisted by Dr. Utzinger of Ray and Dr. Butler of Safford.

The main business of the second session held Wednesday morning consisted of hearing the report of the Reference Committee and the consideration of the various resolutions. The subject of Medical Defense came in for the bulk of the discussion. There was considerable misunderstanding among the delegates at first in regard to the future of the Committee on Medical Defense as well as the future of the accumulated Medical Defense Fund. The result was complete clarification to the satisfaction of all concerned.

It was pointed out by some of the delegates that the number of malpractice suits has shown a considerable increase the past year or two. It was indicated also that 90% of the cases of mal-

practice were the result of inadvertent remarks by the doctors themselves.

The House was also informed that the Council has approved the formation of a Grievance Committee and the reports from other states which have set up such a Committee has resulted in a marked decrease in malpractice suits. Due to the increase in malpractice suits, some of the delegates contended that the Medical Defense Fund should continue to operate as it has over the years. The answer to this suggestion was that it has been the experience in other states which have had similar plans that this is not the proper way to handle malpractice cases and certain changes in our plan are definitely indicated. The members were reminded that the state defense fund has never paid judgments or indemnities. It has merely provided legal aid and expert testimony. The final outcome of the discussion was the adoption of most of the recommendations made by the Committee on Medical Defense. The main feature which was pointed out by the Committee was that practically all members of the Association carry their own malpractice insurance. Therefore, it seemed superfluous and an unnecessary expense to furnish an attorney for cases when the insurance company provided an attorney also. It was decided at the House of Delegates in 1949 that the Medical Defense Fund would be impounded on December 31, 1949 for a period of two years. It was also indicated at the 1949 meeting that the Committee on Medical Defense would function as it has in the past in furnishing expert testimony. It was decided at this time that the Medical Defense Fund would continue to operate until the statute of limitations had expired which would be three years from December 31, 1949. During this time the Medical Defense Committee will continue to operate as always but would furnish an attorney only when the defendent or the legal counsel for the defense would request a legal representative of the state society.

To summarize, the Medical Defense Fund is impounded and the Committee on Medical Defense will function as it always has in the past but legal advice will be furnished only on request of the defendant or the defendant's insurance carrier.

There was a suggestion that the Medical Defense Fund would no longer be required and that it should be made a part of the general fund and in this way the annual dues could be reduced. This met with little support. There were also recommendations that the defense fund should be designated as a building fund and the Society purchase a home for its state offices. This proposition appeared so involved that it was considered inadvisable to consider at the present time.

The House reviewed many of the changes which were proposed for the revision of the Constitution and By-Laws but final adoption was postponed due to the many changes which were added and the fact also that further changes would be necessary when the Association is incorporated.

Some very constructive rules were adopted by the House concerning the annual meeting of that body. In the future the Secretary will furnish the agenda six weeks in advance. He will also obtain the reports of the officers and the various boards and committees at least thirty days in advance of the meeting. It did not request that copies of resolutions pertaining to new business be presented at this time but it would seem that this would be advisable if possible. If the House of Delegates and the various county societies have these reports and proposed resolutions for their consideration and discussion at home it is very evident that their deliberations will be accentuated and their decisions more stable at the time when the discussion comes up at the regular meeting.

For entertainment a golf tournament for the members was played at the Phoenix Country Club Sunday afternoon. Honors were won by Doctors Charles E. Van Epps and Mayo Robb, both of Phoenix. This was followed by a cocktail party at the Club for the members and their wives to which the Maricopa County Medical Society acted as host.

The President's Dinner-Dance was a delightful affair held on the Sunset Terrace of the Hotel Westward Ho. Dr. Ralph F. Palmer was the guest of honor and was presented with a plaque commemorating his fifty years in the practice of medicine. One other member was elected to the Fifty Year Club, namely, Dr. John E. Bacon of Miami. Dr. Bacon was unable to be present.

The election of officers for the ensuing year is as follows: Dr. Harry T. Southworth of Prescott, President-Elect; H. D. Ketcherside of Phoenix, Vice-President; Dr. C. E. Yount, Jr., of Prescott, Treasurer; Dr. Frank J. Milloy of

Phoenix, Secretary and Dr. Harry E. Thompson, Speaker of the House. Doctors A. I. Podolsky and Donald E. Nelson were reelected as Councilors from the Central and Southern District, respectively.

The meeting for 1951 will be held in Tucson.

Medicine and Politics

The Year 1950 Presents a Paradox.

"Politics and medicine don't mix!"

Statements like this frequently are employed by many doctors to justify their failure to register, failure to vote and failure to take part in the political decisions of the local community, the State and the Nation.

Added to this viewpoint is the indisputable and somewhat extenuating fact that the best doctors are extremely busy people, engaged in the night-and-day task of preserving health and saving life.

Nevertheless, this year of decision, 1950, presents American doctors with an undeniable paradox: doctors either must enter the political arena or see politics enter medicine.

For this is not just another election year. It is a year in which medicine itself will be one of the big clay pigeons on the political shooting ranges. The question of Compulsory versus Voluntary Health Insurance—embodying the future not only of the medical profession but of all the American people—will be one of the principal issues in the 1950 Congressional elections.

It is imperative, therefore, that every doctor exercise his franchise this year—his right *as an individual citizen* to register, to vote, and to help influence the political direction of his Nation.

Failure to do so, this year, may mean the ultimate termination of his traditional medical franchise—the right to practice medicine according to ethical professional and scientific standards—not political standards.

REPORTS

SECRETARY'S REPORT

Having read the reports of the other officers, I will attempt to avoid duplicating any of the remarks they are about to make.

At the January session of the Council, Dr. Preston T. Brown resigned the position of Chairman of the National Educational Campaign and Dr. Flinn was appointed as his successor, so Dr. Flinn will give you a full account of the National Educational Program.

I think all of you are aware of the changes in personnel which have taken place in the Central Office.

In compiling my remarks I am influenced by a motion which was passed at the last meeting of quested the State Secretary to have a copy of the the Maricopa County Medical Society which reagenda for the annual session of the House of Delegates in the hands of the county societies at least six weeks prior to the Annual Meeting time. This is not the first time such a motion has been passed by a county society. The revision of the Constitution and By-Laws for the State Association contains such a provision also.

What I am about to say is not in any way criticism but merely a matter of information and explanation. If you will take your present agenda and then refer to the By-Laws of the State Association you will find that it is an actual copy of that section of the By-Laws which outlines the procedure for the business of the House—with one exception—and that is one line under the heading Unfinished Business "Report on Revision of By-Laws." This subject has been on the agenda regularly for the past three years. The actual business of the House at an Annual session aside from the routine reports consists of the report on the transactions of the Council, held on the day prior to the first session of the House—plus all items of new business which are introduced by the members of the House under the heading of New Business. At the present time our By-Laws designate that all new business be submitted in the form of resolutions to be submitted under the heading "new business."

If we should reach the stage where we would have a large amount of new business, it would probably be advisable to follow the example of the House of Delegates of the A.M.A. which require that copies of all resolutions be sent to the headquarters of the A.M.A. several weeks

in advance of the meeting of the A.M.A. House in order that the resolutions may be published in the Journal of the A.M.A., and in this way they can be studied more deliberately. But it hardly seems that we have enough business as yet to resort to such a procedure.

However, our State Association has expanded in so many ways that I believe that the entire membership should be better informed about all that is going on in the State Association. For example, the Professional Board and the Public Relations Board meet at least three or four times a year. The Council meets about the same number of times. Besides there is the work being done to implement the National Educational Campaign. I think that possibly the Central Office will be able to send a letter to the constituent county societies at 60 to 90 day intervals giving them a summary of all these activities which are taking place, and in this manner the county societies should have a better knowledge of what business will be presented when the House of Delegates is about to hold its sessions. This letter will also be printed in the Journal. I am certain there are members of our Association who do not even know that these Boards exist — to say nothing of their functions and activities.

While I am reporting I will say a few words also about the State Journal. The chief complaint in years past has been a lack of scientific articles for publication. I can report at this time that this situation is gradually improving. As for the remainder of the material, we have reams of it. Our main problem is to select that which should be of reading interest to the members of the State Association. The Editorial Board have been planning on sending out a questionnaire to the membership to find out what the readers find of interest in the Journal, but so far we have not gotten around to doing this.

Thank you very much. Frank J. Milloy.

ARIZONA STATE MEDICAL ASSOCIATION

TREASURER'S ANNUAL REPORT

April 21, 1949 through April 15, 1950

GENERAL FUND

CASH ON HAND, APRIL 21, 1949			**$28,021.51**
RECEIPTS			
Dues:			
1948		$ 47.00	
1949 55½ @ $47.00		2,608.50	
9 Transfers @ 23.50		211.50	
1950 431 @ 49.00		21,119.00	
2 Associates @ 25.00		50.00	
		$24,036.00	
A.M.A. Membership Collections			
475 @ $25.00	$11,875.00		
Less	1,225.00*	10,650.00	
Seminar Dues			
42 @ $10.00		420.00	
Exhibitors		2,800.00	
Bulletin Advertising		20.00	
TOTAL RECEIPTS			$37,926.00
LESS DISBURSEMENTS			
Advertising—Radio	$ 2,655.36		
Newspaper	724.78	$ 3,380.14	
Bulletin		90.00	
Council Meetings		240.90	
Dues and Subscriptions		22.00	
Industrial Insurance		70.06	
Insurance - Furniture and Fixtures		25.40	
Miscellaneous		139.95	
Mohave County Medical Society		1,500.00	
Office Supplies, Printing, Mimeographing		2,012.10	
Postage		210.00	
Pamphlets		401.45	

Rent		1,140.00		
Seminar-Professional Board		1,696.53		
Salaries		9,311.44		
Social Security and State Employment		392.76		
Travel		2,543.03		
Telephone and Telegraph		573.87		
Treasurer's Office		200.00		
Treasurer's Bond		113.50		
Women's Auxiliary		500.00		
Annual Meeting—Badges	$ 40.74			
Guest Speakers	654.09			
Stenographer	90.00			
Projection Operator	37.50			
Mimeographing	216.89			
Miscellaneous	38.04	1,077.26	25,640.39	
NET INCREASE				12,285.61
				$40,307.12
ADD: Accrued Withholding				†116.60
LESS Filing Cases			$ 232.16	
Copy Holder			32.54	
Tape Recorder			309.44	574.14
CASH ON HAND, APRIL 15, 1950				**$39,849.58**

MEDICAL DEFENSE FUND

CASH ON HAND, APRIL 21, 1949				
Yavapai County Savings Bank			$ 1,676.37	
Bank of Arizona			3,982.47	$ 5,658.84
RECEIPTS				
Bond Interest		$ 944.94		
Interest on Savings Account		26.82		
Dues: 1948 1 @ $3.00	$ 3.00			
1949 55½ @ 3.00	166.50			
9 Transfers @ 1.50	13.50			
1950 431 @ 1.00	431.00	614.00	$ 1,585.76	
LESS DISBURSEMENTS				
Legal		$ 1,721.83		
Telephone		14.60		
Safety Deposit Box		3.60		
Mimeographing		41.47	1,781.50	
NET DECREASE			$ 195.74	
Two U. S. Treasury Bonds			2,000.00	
Interest Accrued on Above Bonds			28.48	2,224.22
CASH ON HAND, APRIL 15, 1950				**$ 3,434.62**

SUMMARY

TOTAL CASH—General Fund	$39,849.58
Medical Defense Fund	3,434.62
	$43,284.20

CASH—BANK OF ARIZONA		
General Fund	$39,849.58	
Medical Defense Fund	1,731.43	
	$41,581.01	
CASH—YAVAPAI COUNTY SAVINGS BANK		
Medical Defense Fund	1,703.19	
TOTAL CASH ON HAND		**$43,284.20**
INVESTMENTS		
United States Savings Bonds—Medical Defense Fund		36,000.00
FURNITURE AND FIXTURES		1,593.94
TOTAL ASSETS		**$80,878.14**

* An overpayment of $25.00 on the A.M.A. Special Assessment was made March 15, 1950. This will be corrected when dues for 1950 are transmitted to the A.M.A.

† This amount of $116.60, plus accrual as shown on last year's statement of $127.30, leaves an actual accrual of $243.90 as of April 15, 1950.

UNITED STATES TREASURY BONDS OWNED BY THE ASSOCIATION

2⅞% — 1955-60

$100—206416 F
206417 H
206418 J
206419 K
206420 L

$500—88490 L
88491 A
88492 B
88493 C
88494 D
88495 E
88496 F

$1000—188524 D
188525 E
188526 F
188527 H
188528 J
188529 E
336027 H
336028 J
343703 C
343704 D

2¾% — 1960-65

$1000—55090 L
55091 A
55092 B
4263 C
4264 D

2½% — 1949-

$1000— 4446 F
4447 H

2¼% — 1959-62

$1000—45403 C
35972 B

2¾% — 1951-54

$1000—70887 H
66163 C
46532 B

2½%

$1000— 5746 F
5747 H
5748 J
35081 A
39044 D
13695 E
5796 F
5797 H
5798 J
238101 A

RECOMMENDATIONS

1. That our dues remain at $50 for 1950-51.
2. That $1.00 be deducted for Medical Defense

Other recommendations will be made in detail with the proposed budget which will be submitted by the Treasurer.

Respectfully Submitted,

C. E. Yount, Jr., M. D.

We, the undersigned Committee, appointed by President Robert S. Flynn, have audited the books of the Treasurer and inspected the bonds in his custody, and find them to be correct.

E. A. Born

Harry T. Southworth

ANALYSIS OF DISBURSEMENTS

Salaries		$ 9,311.44
Includes: Alan S. Jackson	$ 1,200.00	
Kitty Ives Coleman	1,000.00	
Supplies		959.98
Includes: Stamps	210.00	
Mimeographing		497.86
Travel		1,788.60
Includes: Dr. Hamer	842.93	
Executive Secretaries—Peachey	548.76	
John Hart	126.85	
Mrs. Coleman	33.39	
Dr. Flinn	39.85	
Carpenter	196.82	
Miscellaneous		6,758.68
Includes: Western Union	116.48	
Telephone	458.76	
Rent (95.00 per month)	1,140.00	
Expense Treasurer's Office (includes bonds)	313.50	
Industrial Commission	67.96	
Employment Security Com.	322.45	
File Cabinets	232.16	
Copy Holder	32.54	
Collector of Int. Rev. (penalty)	8.50	
A.M.A. Special Assessments	1,225.00	
Insurance on Office contents	25.40	
Tape recorder and accessories	347.30	
Auxiliary	500.00	
Mohave County Medical Society	1,500.00	
Ads for Maricopa Med. Soc.	59.40	
Annual Meetings		1,619.44
Professional Board		2,048.65
Seminars: Southern '49 late bill	16.31	
Northern '49	719.50	
Southern '50	710.50	
Yuma '50	266.53	
Mimeographing	19.06	
Travel—Mrs. Coleman	11.47	
Dr. Present	269.86	
Projector	1.60	
Wires	4.43	
Luncheon	29.39	

Health Activities		3,884.49
Radio	2,600.80	
Ads	704.16	
Travel—Merrill	207.23	
Mazera	62.05	
Miscellaneous	310.25	
National Educational Campaign—State		671.89
Travel—Dr. Kohl	133.00	
Pamphlets	223.03	
Printing	77.88	
Mimeographing	208.81	
Mailing (to nurses)	9.00	
Luncheon	20.17	
Medical Defense Fund		3,809.98
Bonds	2,028.48	
Deposit Box	3.60	
Legal Expense	1,721.83	
Telephone	14.60	
Mimeographing	41.47	
TOTAL		**$31,351.01**

REPORT OF THE CHAIRMAN OF THE COUNCIL OF THE ARIZONA MEDICAL ASSOCIATION MAY 1, 1950

The Council of the Arizona Medical Association has met four times since the last Annual Meeting of the society. The meetings were on June 26, and October 2, 1949, January 15, and April 30, 1950. Attendance at these meetings has been close to 100%. The meetings have each been several hours in length.

During the year there has been one change in personnel on the Council. On October 2, the Council was forced with great regret to accept the resignation of the Treasurer, Dr. C. E. Yount, due to illness. Dr. Yount has served the society in various offices since 1913. His son, Dr. C. E. Yount, Jr., was appointed to fill his vacancy for the remainder of the year. On October 2, the Council accepted the resignation of Mr. Carl Peachy as Executive Secretary, and on January 15 interviewed Mr. Robert Carpenter, a man with wide experience in public relations, and approved his appointment. Mr. Carpenter has been serving the Association since January.

One of the most difficult situations which confronted the Council this year was that existing in Mohave County. On receipt of letters from both the president of the Mohave County Medical Society and Dr. Arnold, a committee of the Council, consisting of the three immediate past presidents, journeyed to Kingman and carefully investigated the situation there. They came to the conclusion that the Mohave County Medical Society had been justified in the action which it had taken in regard to Dr. Arnold, and on receipt of the committee's report the Council wholeheartedly voiced its support of the doctors of Mohave County Society.

Another important action of the Council concerned a letter from the office of the Industrial Commission regarding the rising cost of medical care for patients treated by the Commission. The Council voted to support the Medical Advisory Committee of the Industrial Relations Committee in their efforts to reduce these costs, and so informed the Chairman of the Industrial Commission. They further voted to recommend that a full time physician be employed by the Industrial Commission to check on the expenditures for the various cases, and directed the Industrial Relations Committee of the Medical Association to prepare legal cases on fraud or malpractice where gross overcharging existed.

The establishment of a State Medical Association Grievance Committee to investigate complaints brought by the public concerning physicians has been discussed and a committee of the Council appointed to make recommendations for this.

Among the expenditures authorized by the Council during the past year have been $5,000.00 for the Activities Board, $1500.00 for the Committee on National Education against socialized medicine. It was decided that the travel costs of the President should be defrayed on a modest scale by the Association, and that office expenditures for various health activities and Professional Board projects should be charged against their budget.

There has been considerable discussion regarding the Board of Medical Examiners and recommendations have been made to that Board de-

signed to protect individual physicians, and to help the Association keep in contact with the proceedings of the Board.

During the year the Council has made repeated attempts to secure a satisfactory contract with the Veterans Administration for home care of the veterans under the administration of the Arizona Blue Shield. No contract could be consumated as the Veterans Administration refused to allow administration by Blue Shield. The Association is still pressing for a satisfactory contract.

During the year the Council authorized the attendance at the Public Relations Conference of the American Medical Association by Dr. Merrill, Chairman of the Health Activities Board, and at the National Conference on Physician and Schools by Dr. Ladd Mezera of the State Department of Health. Detailed reports of these meetings were received from our representatives. Dr. Flinn was authorized to attend the Conference of the National Education Campaign.

Many other matters were considered at the meetings of the Council, but time does not permit their enumeration.

Respectfully submitted,

Hugh C. Thompson, M. D.

STATEMENT OF EXECUTIVE COMMITTEE OF BOARD OF TRUSTEES OF AMERICAN MEDICAL ASSOCIATION on H. R. 5182

"To Consolidate Certain Hospital, Medical and Public Health Functions of the Government in a United Medical Administration"

We are, of course, in favor of the purpose of the Hoover Commission's recommendation in attempting to effect economy in the operation of the several medical services under the Federal Government, provided that economics can be in reality accomplished without sacrifice of the quality of service rendered and without interfering with the special missions of certain of these services.

A careful perusal of H. R. 5182 reveals no evidence of how economies are to be accomplished, how the special functions of the several services are to be preserved or how the quality of medical care is to be safeguarded.

We object also to the administrative provisions of the bill. The administrator, who is to be directly responsible to the President, is given blanket authority to issue regulations having the force of law without any restraint but that of the President and of a Board made up of the Surgeons General of the Army, Navy and Air Force and the Administrator of the Veterans Administration. The United States Public Health Service, with its multiple activities and responsibilities, has no representation on this Board. The Board can act only in an advisory capacity and can in no way control the decisions of the Administrator.

The American Medical Association has repeatedly advocated the consolidation of the medical activities of the Government other than those of the Veterans Administration and the Armed Forces under a single Department of Health. It also believes that an integrated system of hospitals should be developed for the country as a whole, such as is now developing under the Hill-Burton Act. It believes, however, that the consolidation of the medical services as proposed in H. R. 5182 at this time, or until such time as careful study has developed convincing evidence of the wisdom of such a consolidation, would be a risky procedure and fraught with great possibility of harm.

The Association is of the opinion that the Congress should proceed slowly in this matter and that any action by the Congress should be preceded by a careful study of the entire problem with particular reference to possible economy, the effect on the quality of medical care and on the execution of the primary missions of the Armed Forces, the Public Health Service and the Veterans Administration.

It believes that the principal economy to be accomplished is in the coordination of the several federal hospital systems that would provide for joint use of available beds and joint planning in the field of hospital construction. It believes a central hospital board, clothed with authority to adjust the hospital program to the needs of the services, could gain the ends desired without consolidation of professional personnel.

INDUSTRIAL RELATIONS COMMITTEE ANNUAL REPORT

Your Committee undertook its function on June 1, 1949, and has met the first Monday of each month since. On several occasions a meeting has been held the preceding evening with members of the Industrial Commission to dis-

cuss varying topics of importance, the foremost being ways and means of decreasing the overwhelming medical costs. This group has made an exerted effort through the year to make and aid in carrying out recommendations, that would decrease unnecessary expenses to the Commission, and yet not interfere, in any way, with good medical practice or legitimate reimbursement to the doctor.

At every meeting the Committee has served as the Medical Advisory Board to the Industrial Commission in thoroughly reviewing and examining patients directed to the Board by the Commission. Conclusions have in each instance included diagnosis, recommendations as to further handling of the case, or rating when appropriate.

Innumerable records have been reviewed in an attempt to evaluate the need for additional physiotherapy in cases where requests have been made which seemed beyond a reasonable amount. Whereas, authorization was advised in a number of cases, the huge majority of requests were rejected where further physiotherapy obviously appeared to be unnecessary.

Many additional records were reviewed in cases in which the bills rendered seemed out of proportion to the injury in question, the treatment indicated, or varying technicalities involved in interpretation of the fee schedule. In instances in which the amount was cut, the attending surgeon was advised that his personal appearance before the Committee for clarification of the case would be welcome.

Some months ago this Committee and the Industrial Commission recognized that the large majority of the protracted cases were psychiatric in nature, and should be considered as such. For this reason it was instituted for all cases not recovered in sixty days and not involving a clearly defined injury requiring prolonged treatment, to have a neuropsychiatric consultation for the purpose of evaluation. The purpose of this examination is to either institute appropriate psychiatric treatment expeditiously or to terminate the case before many months or years have elapsed.

In summary, it is pointed out, that in addition to its function in the examination and disposition of patients as a Medical Advisory Board, your Industrial Relations Committee has made an all out effort to aid in the diminishment of the well-known, astronomical medical expenses of the Industrial Commission. The result of our efforts should be gratifying but are, as yet, unknown.

Respectfully submitted,

INDUSTRIAL RELATIONS COMMITTEE

Charles W. Sult, Jr., M. D., Chairman

Carl H. Gans, M. D.
Ronald S. Haines, M. D.
Robert E. Hastings, M. D.
Joseph McNally, M. D.

HEALTH ACTIVITIES BOARD

Meeting of the Health Activities Board of the Arizona Medical Association, held in the Ming Room of Hotel Westward Ho, Phoenix, Arizona, Sunday, April 16, 1950, convened at 10:05 a. m., Dr. M. W. Merrill, Chairman, presiding.

Present:

Doctors—Marriner W. Merrill (Phoenix) Chairman
Broda O. Barnes (Kingman)
H. H. Brainard (Tucson)
A. H. Dysterheft (McNary)
Robert M. Matts (Yuma)
Donald E. Nelson (Safford)
Robert S. Flinn (Phoenix) member ex-officio as President

Excused:

Doctors—Paul W. McCracken (Phoenix)
Frank J. Milloy (Phoenix) member ex-officio as Secretary

Minutes of the meeting of this Board held July 17, 1949 were approved as printed and circulated among the members.

ARIZONA HEALTH COUNCIL

The Executive Secretary reported on the meeting he attended of the Arizona Health Council held Wednesday, March 15, 1950 in Phoenix, presided over by Mrs. George A. Williamson, President. Following a talk given by him on the operations of the Arizona Medical Association, through its Central Office, extending full cooperation to the various health and welfare agencies there present, discussion ensued as to the need for continuance of these monthly luncheon meetings. It was pointed out that work by the Council on a state level had accomplished its purpose in activating health councils on a county level, many of which are now functioning

quite successfully. It was the concensus of opinion of those present that unless some specific project required attention or a program determined necessary at this time, little need for continuance of these meetings is apparent. It is observed that the county groups seemed to be fully capable of handling their individual community health problems.

Following lengthy discussion, on motion regularly made and unanimously carried, this group determined to disband as an organization, it being agreed that should future need for its reactivation dictate, the group could be readily called together again.

Chairman Merrill stated that he, too, felt the objective had been attained and expressed appreciation for the work of the Arizona Health Council.

SPEAKERS' BUREAU

Chairman Merrill reviewed the ever increasing importance of the work and maintenance of a Speakers' Bureau and called upon the Executive Secretary to present his views on this subject.

The Executive Secretary discussed the experiences of the Central Office during the short two months of his association there and the difficulties encountered in the effort, on short notice, to accommodate demands and provide proper speakers for the occasion. The file discloses that sometime in the past a questionnaire was developed and circulated among the membership seeking volunteers willing to be listed and available for speaking engagements on both the medical and compulsory health insurance topics. The need for revision, bringing the list up-to-date, was stressed and authority sought to again circulate the membership with the view in mind. Also, the need was stressed for the establishment of a lay panel in addition to the medical. It was pointed out that in many states such a panel has been developed with gratifying results. The aid of outstanding, qualified and respected community civic leaders is sought who can present the national socialistic trend on the lay level weaving into the discussion the affect of the continuance of such a policy upon the people not only from the medical viewpoint but also from the economic side.

To accomplish this will require the assistance of the members of the profession who have contact with these community leaders either through personal or civic organization association. Where practiced, such presentations, too, deliver quite a punch in the challenge.

Dr. Flinn called attention to the important contribution made by the Woman's Auxiliary to this end and emphasized the need for continuing and expanding their effectiveness. Also, the necessity of screening the speakers and, if possible, their subjects to insure unity of purpose. This could be accomplished through a special committee possibly composed of members of this Board with the assistance of the Central Office.

Dr. Nelson made the suggestion that civic organizations and social clubs be apprised of the existence of a speakers' bureau and invite them to call upon the Association to furnish speakers for the purpose of addressing their groups. It was the unanimous opinion that this should be done and the Executive Secretary made a special note of the Board's pleasure.

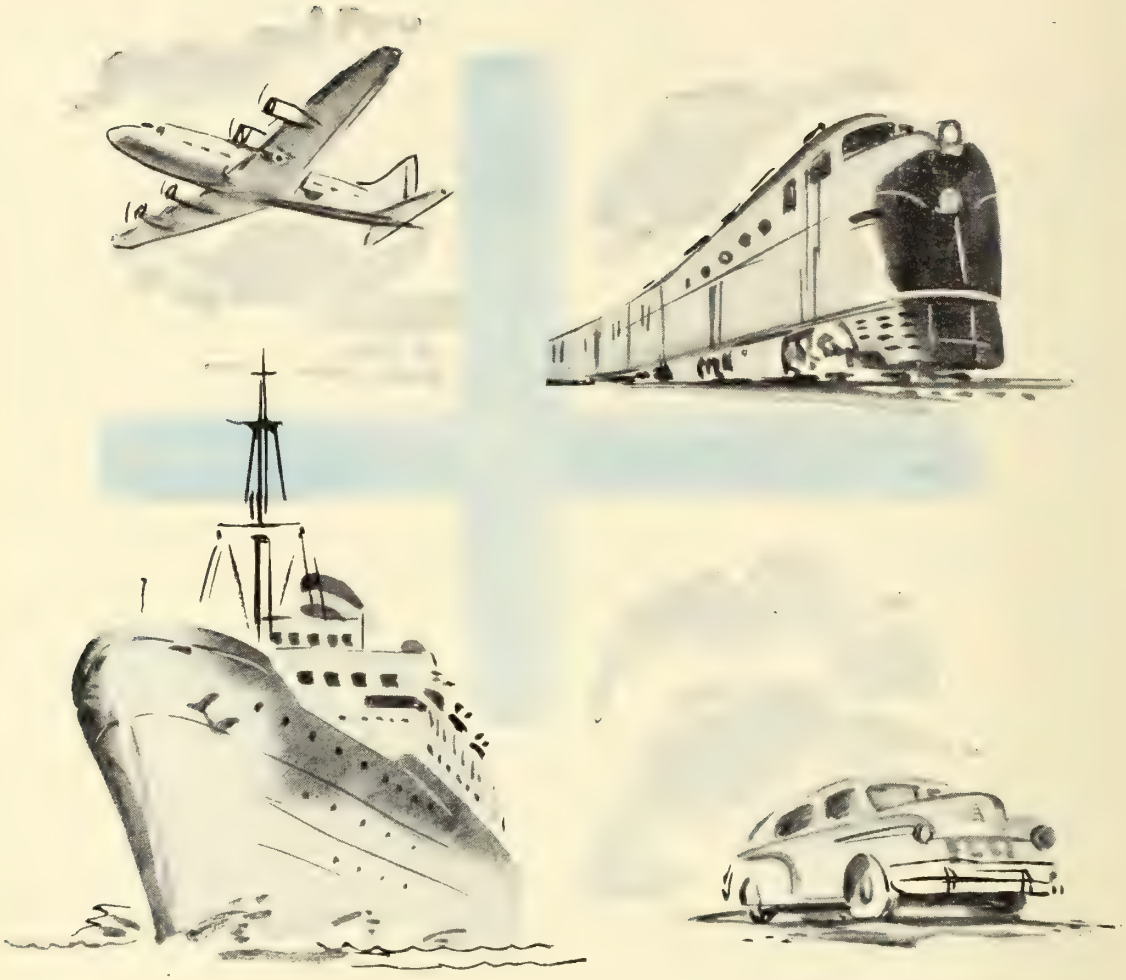
It was moved by Dr. Barnes, seconded by Dr. Nelson, and unanimously carried that the Executive Secretary prepare a proper questionnaire and circularize it among the membership of this Association for the purpose of developing a revised up-to-date speakers' panel; that in due course all organizations, both civic and social within the state, be given notice of the availability of speakers to address their groups, offering their services and inviting their invitations; and that every effort be made to properly screen the panel and subject matter of the speakers to assure unity of purpose.

ADVERTISING

Newspapers

Dr. Merrill reviewed the financial status of the budget of this Board indicating that most of the money appropriated for the fiscal year 1949-1950 had been expended principally on the radio program, "Medical Quarter Hour" with associated newspaper advertising, leaving a small balance as the result of early discontinuance of the broadcasts effective March 1, 1950. The Association does not now have either a radio or advertising program. It was the thought at the last meeting of this Board that we would give the newspapers a trial. However, to give it a trial will be somewhat expensive if we are to embark upon a program on public relations.

The Chairman further stated that he had investigated costs for publications in both the Phoenix and Tucson papers, and can say that they are approximately the same. Providing for a small daily, morning and evening publication



Airsickness, trainsickness, seasickness, carsickness—all respond to treatment with Dramamine (brand of dimenhydrinate.)

DRAMAMINE * —for the Prevention and Treatment of Motion Sickness.

*Trademark of G. D. Searle & Co.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

RESEARCH IN THE SERVICE OF MEDICINE SEARLE

of one inch on a year's contractual basis (52 weeks) with an insert each Sunday of a one-eighth page, both in the Phoenix papers, will cost $4,191.20; this same advertising, with the exception that the Sunday issue will provide a one-quarter page, will cost $7,415.20. The objective of this type of advertising is to insert a short statement in the press, daily, followed by the larger Sunday spread, which should add a "punch" to the topic or statement run during the week. This same program published in the Tucson papers will cost $4,189.12 with the dailies and one-eighth page on Sunday, and $6,393.92 for the one-quarter page. This total program will cost approximately $14,000.00. As you know, last year's total budget was $5,000.00. Then, if you wish to consider such a program for 26 weeks or one-half year, the total cost would be about $8,000.00 and for a period of 13 weeks or 3 months, approximately $4,000.00. Possibly you may wish to consider only one of the dailies, the Phoenix papers. I call your attention to the circulation of the local press which includes two daily papers and one on Sunday—approximately 130,000, while the Tucson papers claim a circulation for the dailies of 45,485 and that of the Sunday issue 57,253.

Considerable discussion ensued, with suggestions that we investigate further the possibilities and costs of advertising in the Sunday issues, using a one-fourth to a one-half page spread.

Dr. Brainard reviewed experience in Tucson recently pertaining to advertising, as did likewise Dr. Flinn, who presented facts relating to advertising by the Alameda County Medical Society in California. The Executive Secretary spoke on the press-radio program of Oklahoma Medical Association. Dr. Barnes had his "eye" on the Bulletin with its possibilities, which the Chairman assured him would be discussed before the close of the meeting.

Dr. Nelson moved, seconded by Dr. Brainard, that action be deferred on an advertising program; that the Executive Secretary be instructed to obtain further figures of the possibilities of inserting a one-fourth or a one-half page spread in the Sunday newspapers of both Phoenix and Tucson on the basis of six and twelve times per year; and that the Chairman be requested to confer with the membership at the time of or prior to the Annual Meeting, with a view of submitting a recommendation to Council for its action, to be included in the Annual Report of this Board.

"To Your Health" Column

Dr. Merrill advised that at a meeting with the local press, represented by Mr. Hoover and Mr. Montgomery, they approved reinstatement of the weekly news column entitled "To Your Health." It was suggested that this column be devoted to timely seasonal subjects of interest to the readers such as possibly "Sunburn", etc., and that various doctors throughout the state be contacted in advance to prepare articles for publication as may be determined appropriate.

"Know Your M. D."

Dr. Merrill called attention to the action of the Board at its last meeting authorizing the expenditure of $715.00 to cover the costs of publishing 50,000 copies of a pamphlet to be entitled "Know Your M. D.". Delay in completion of the publication was attributed to the recent change in administration of the Central Office and he expressed confidence that the press would be rolling shortly. All material, including cuts, is in hand and it is expected the job will be completed in the near future.

Health Activities Bulletin

Dr. Merrill asked for discussion on the continuance of the publication of the Health Activities Bulletin. He spoke very favorably of its public reception and apologized for the apparent delay in publication of the current issue.

Dr. Barnes pointed out the unlimited possibilities of the publication through wide public distribution, thereby bringing to the attention of the people, medical economics and the advancement in modern medicine; suggesting that thought be given to inclusion of these and other similar subjects in its content and develop this media as an instrument, reflecting the progress attained in the field of American medicine.

It was moved by Dr. Flinn, seconded by Dr. Barnes, and unanimously carried, that we continue publication of the Health Activities Bulletin; that consideration be given to its publication every two months; that we do all we can to develop and promote this publication as our official organ, broadening its content scope, reflecting the progress in American medicine.

BUDGET

Dr. Merrill inquired whether it was the pleasure of this Board to request of Council the same

budget appropriation for the new fiscal year 1950-1951 as we had last year, i.e., $5,000.00. There is an unexpended balance of $1115.51, and deducting therefrom the cost of publication of the pamphlet, "Know Your M.D.", previously discussed, only a small balance remains.

It was regularly moved and unanimously carried that this Board request of Council a like appropriation for the new fiscal year in amount equal to that allotted for the current fiscal year.

CHANGE OF NAME DESIGNATION

Dr. Merrill asked the view of the members to change the name of this Board to that of Public Relations Board. He stated that this has been suggested by several members of Council and that it seems to him that the name "Health Activities Board" is a little ambiguous and after all, we are a public relations board and functioning as such; further, that we could continue the name of the Health Activities Bulletin publication even though we determine upon the new designation.

It was regularly moved and unanimously carried that we recommend the change in designation of the Health Activities Board to that of Public Relations Board, and that the Chairman include this recommendation in his Annual Report.

Meeting adjourned at 11:20 A. M.

Robert Carpenter
Executive Secretary.

Arizona Medical Problems

CONSULTATION AND CASE ANALYSIS

ARIZONA MEDICINE again presents an unsolved and difficult case from the practice of Arizona physicians, with the Case-Analysis and comments of a specially-chosen and nationally-known Consultant.

Any physician who has an undiagnosed case which has defied other methods of solution may send it for consideration. The case should be completely worked up, but an editor will help compose the report. Whenever the need for an answer is urgent, the Consultant's reply will be sent direct to the submitting physician, before publication.

Please send communications and data to Dr. W. H. Oatway, Jr., 123 S. Stone Avenue, Tucson, Arizona, or care of The Editor, Arizona Medicine.

The current case includes, among other things, a problem in *hematology*. The illness which is described occurred several years ago, but the patient is alive and still subject to such episodes. It is expected that the consultant will describe the progress of knowledge about the condition and its treatment—a discussion which should be absorbing and helpful.

The *consultant* for this case is DR. CHARLES A. DOAN, one of the most noted American hematologists.

Dr. Doan is dean of the College of Medicine, Ohio State University. He was formerly professor of medicine, and chief of the department of medical and surgical research (1930-36), chairman of the department of medicine (1936-44), and dean, director of medical research, and director of the university hospitals since 1944. The school is now constructing a $17,000,000 medical center.

Dr. Doan is a graduate of Johns Hopkins medical school, was on the resident and research staffs of Hopkins and Harvard Medical School, and was a member of the staff of the Rockefeller Institute for Medical Research from 1925 to 1930.

He is member of a round dozen medical, research, anatomy, pathology, and honorary societies, and was president of the Central Society for Clinical Research in 1939-40. He served in the Medical Corps during parts of World War I and II.

* * *

CASE NUMBER XXVII

The case is one of a **white female who was 38 years of age** when she was first seen in Arizona. She came to the state to rest and be protected from the midwestern fall pollen season.

Her **past medical history** was significant, and contained several diverse ailments—

a. The patient had always been **allergic,** with a severe **pollenosis** each fall. She was sensitive to the ragweeds, and somewhat to alternaria. The hay fever had been less since her pregnancy five years ago.

b. For several years she had had attacks of right **ureteral spasm.** There was no infection or local lesion present at any of several examinations. She has not been able to tolerate narcotics, but could use barbiturates and salicylates.

c. Two years previously she had developed an

exophthalmic goiter, with a basal metabolic rate of plus 70%. A thyroidectomy was done, with removal of four-fifths of a gland which was "hypertrophic and inflamed." Lugol's solution was used, but thiouracil was avoided. The BMR returned to normal.

d. For several years the patient had had episodes of "agranulocytosis." They were precipitated by fatigue, certain foods, and most recently by an infection of the right hand which responded well to penicillin. Her normal total blood count was said to be about 9,000, with normal differential figures. The best therapy for the neutropenia had been Armour's yellow bone marrow.

The first examination after she arrived was precautionary. She felt restless and unable to relax, had been insomnic, had had frequent headaches, and noted palpitation and a rapid heartbeat. Her appetite was good, but she had a mild diarrhea. The menses had recently been irregular, with periods every 2 to 3 weeks. She weighed 117 pounds, 3 less than usual. She had not been taking any medication.

The patient seemed alert, moved quickly, and was nervous. There was a fine tremor of the fingers. The pulse was 130 to 140, and regular. No thyroid tissue was palpable, and there were no abnormal eye signs. The heart and lungs were normal by physical examination and fluoroscopy, except for the tachycardia. A blood count showed 12.7 gm. of hemoglobin; 4,640,000 erythrocytes; 6,300 leucocytes, with 52% neutrophiles, 43% lymphocytes, 4% monocytes, and 1% eosinophiles. A BMR, made under ideal conditions, gave a reading of plus 24%. After consultation with her home physicians she was given 5 drops of Lugol's solution T. I. D.

Ten days later the patient noted a throat irritation, dyspnea, a dry recurrent cough, a general aching and malaise, and had two mild chills. The lungs and nose were clear. There was a fever of 100.2 degrees. The right flank was slightly tender. The condition became worse the following day, and penicillin was prescribed. The blood count at that time had a normal differential, but the total WBC was 4,150. A urinalysis contained a few extra leucocytes and 1 plus albumin.

Two days later she was sent to a hospital because the respiratory infection had not cleared and **her white blood count had shifted to a severe neutropenia.** The total count was 4,000 cells, with 4% stab neutrophiles, 94% lymphocytes, and 2% monocytes. A mild anemia developed at the same time. She ached all over, especially in the back and head; there was pain and spasm in the area of the right ureter; a spastic constipation was present; sedatives had no effect; and the temperature remained on a plateau of about 100 degrees.

Therapy consisted of yellow bone marrow extract, crude liver extract and penicillin intramuscularly, a high vitamine intake, Lugol's solution, and barbiturates.

The bronchitis persisted, but x-rays showed no consolidation. The gums quickly became soft and tender. When the blood count remained unchanged on the fifth day, pentose nucleotides were started (10 c.c. intramuscularly every 3 to 6 hours); they caused racking generalized pains after each injection.

Two days later the WBC rose to 5,600 with 4% stab cells, 17% segmented cells, 77% lym., and 2% monos. The fever began to decrease, but the restlessness and aching persisted. The pent-nucleotides were stopped, and a blood count 6 hours later showed a relapse to previous levels. This may have been a coincidence, since they rose again the following day before the material was restarted.

The return to a normal granulocytosis was maintained, the gingival condition improved, and the bronchitis cleared, even when the medication was discontinued. She was slowly rehabilitated and discharged under close observation.

* * *

QUESTIONS:—

1. What is the most acceptable term for this condition?
2. What is the etiology? Are her other ailments related to the depression of white blood cells?
3. Is the course of her illness typical or atypical?
4. What are the best modern methods to use in treatment of such a case, both for the acute illness and prophyllactically?

M. D., Tucson.

* * *

ANALYSIS AND ANSWERS:—

1. *What is the most acceptable term for this condition?*

The mechanism involved must determine the diagnostic terminology to be used here. The history in this 38-year-old housewife includes "*episodes* of 'agranulocytosis' for several years" suggesting the "*periodic cyclic neutropenia*" recently reviewed and emphasized as an independent diagnostic entity by Hobart Reiman and Thomas de Berardinis (Blood, 1949, IV, 1109).

The recognition some years ago by Kracke and by Madison and Squier independently of an allergic mechanism underlying the syndrome first described by Schultz as "*agranulocytic angina,*" with specific amidopyrine sensitivity of the myeloid tissues in bone marrow as the most frequent etiologic factor, raises the question in this pa-

tient with a past personal history of "severe pollenosis each fall" of an allergic blood dyscrasia. Some bacterial infection, as for example, Friedlander's bacillus, or their antigens, may precipitate a specific neutropenic leucopenia. Thiouracil, though apparently not used during the hyperthyroid episode in this patient, is a well-recognized marrow toxin on a hypersensitization basis, with special reference to granulocytes.

"*Primary splenic neutropenia*" is irregularly recurrent and precedes and is associated with "fatigue and infection." The history reads: "Episodes of agranulocytosis . . . *precipitated* by fatigue, certain foods, and by an infection of the hand. . . . The best therapy for the neutropenia had been Armour's yellow bone marrow." The reviewer would be inclined to question the literal interpretation of these statements and to suggest the possibility that the symptoms mentioned *followed* the neutropenia, and since no experimental chemical or unequivocal clinical evidence has yet been adduced to support the claim of specific myelopoietic stimulation for yellow bone marrow, a "spontaneous" cyclic remission or the reversal of specific splenic granulocytic hypersequestration could better explain the observed facts.

2. *What is the etiology? Are her other ailments related to the depression of white blood cells?*

To this consultant, the etiologic mechanism best fitting all of the facts in this case is *primarly splenic neutropenia.* Basically the hypothesis assumes an inherited hyperinstability of the spleen. The size of this organ usually varies directly with its pathologic activity. No mention is made of enlargement of this organ in the physical examination of this patient. Either spontaneously or with any minor or major constitutional disequilibrium, there may be precipitated this hypersplenic complication of neutropenic leucopenia.

The hyperthyroid state with a basal metabolic rate of plus 70, resulted in a subtotal thyroidectomy, the gland being "hypertrophic and *inflamed,* histologically." Why "inflamed" if on a solely metabolic basis? Why inflammation within the thyroid gland, unless the cellular defenses of the body were lowered to bacterial invasion? Uncomplicated hyperthyroidism, per se, may give a mild mononuclear predominance in the blood, but never the profound neutropenia recorded in this patient. Also, the "normal total blood count was said to be *9,000* with normal differential figures." Vague recurrent hyperthyroid symptomatic generalizations were first recorded, with tachycardia, B.M.R. plus 24 and a fine tremor of the fingers. *W.B.C. 6,300* with only 52% neutrophils. Under Lugol's solution only, throat symptoms developed with cough, chills, mild fever, *W.B.C. 4,000* with "normal differential" (probably more neutropenic). Two days later *W.B.C. 4,000,* but with only 4% P.M.N., 94% lymphocytes, with "mild anemia," (? splenic hemolysis); bronchitis persisted but without pulmonary consolidation; gums became soft and tender (? Vincent's *infection,* which always appears when neutropenia develops). Pentnucleotide therapy, an experimentally proven powerful specific myelopoietic stimulant when toxic marrow depression or destruction has not inactivated the underlying hematopoietic mesenchyme, coincided with the reappearance of 21% P.M.N., even though rather severe reactions followed the i. m. injections. "The return to normal granulocytosis was maintained, the gingival condition improved and the bronchitis cleared *even when the medication* (nucleotide) was discontinued" (because of reactions).

Usually, if and when the infection has been primary, chemo and antibiotic therapy must be continued several days to prevent a relapse, whereas when the neutropenia is primary, the return of granulocytes to blood and tissues is followed promptly by complete clinical recovery, as in this case.

3. *Is the course of her illness typical or atypical?*

The clinical course of this illness is *typical either of periodic cyclic neutropenia* or *of recurring primary splenic neutropenia. The differential diagnosis* may be easily established from data readily obtained through two tests: (1) Direct bone marrow study will reveal an hypoplasia of the myeloid elements during the neutropenic phase of the cycle in the former, while in the latter there is always a myelocytic hyperplasia without myeloid maturation arrest; (2) the adrenalin test will be negative in the first instance, but will reveal a marked specific but reversible splenic hypersequestration of granulocytes in the second case.

4. *What are the best modern methods to use in treatment of such a case, both for the acute illness and prophyllactically?*

Either as the best prophylactic measure against future recurrences during an interim between attacks, or as an emergency measure during an acute episode, *splenectomy* is the only effective therapy *for primary splenic neutropenia.* This treatment has not interrupted the cyclic type of recurrent neutropenia in those individuals in whom it has been accomplished, though the symptoms have been ameliorated. *Chemo and antibiotic therapy* must always be instituted whenever neutropenic leucopenia is discovered, the selectivity being based on the specific pathogenic organism which can be isolated and identified and tested in vitro. Supportive whole fresh blood transfusions should be given as indicated. *Folic acid* continues to be the best pan-marrow stimulant including myelopoiesis which we have yet achieved therapeutically, *and may be used in preference to pentnucleotides now.*

CHARLES A. DOAN, M. D.,
Dean, College of Medicine,
Ohio State University,
Columbus, 10, Ohio.

PHOENIX CLINICAL CLUB

Massachusetts General Hospital

Case Report No. 17

First Admission: A forty-six-year-old Lithuanian-American machinist entered the hospital because of fatigue, weakness and abdominal pains not related to meals.

At the age of twenty-two years the patient had a penile lesion and discharge, which were cleared up by his physician. He had no rash and was well until eight years before entry, when an ulcerating, crusted, thickening of the skin appeared on the side of his nose. This lesion brought him to the Skin Out Patient Department, where blood Hinton and Wassermann tests were positive, and the spinal-fluid findings were negative. The lesion regressed under potassium iodide therapy. Six years before entry he received bismuth injections for four months. He then lapsed in his treatments and was not seen until three years before entry when he was sent in by the Selective Service Board because of a positive serologic reaction. He then received a total of eight arsenic and thirty-seven bismuth injections, when treatment was stopped because of jaundice. At that time he also complained of weakness, nervousness, exertional dyspnea and epigastric pain. Physical examination revealed a blood pressure of 140 systolic, 110 diastolic, tremor of the tongue and finger, an aortic systolic murmur and slight midepigastric tenderness. The liver edge was 2 cm. below the costal margin. He was placed on a high-carbohydrate diet and felt improved. During the year before entry he received ten more bismuth injections. Five months before entry he again noticed increasing weakness, fatigue and occasional pains in the lower abdomen, particularly before bowel movements. He also complained of unsteadiness in the dark and a sensation of not knowing where his feet were. He lost about 8 pounds during this period, despite increased appetite.

The patient admitted drinking two or three quarts of ale a day and whiskey occasionally. On one occasion he was seen in the Out Patient Department during an attack of delirium tremens. He drank a large amount of water and had a urinary frequency of twelve times a day.

On examination, the patient appeared chronically ill and showed evidence of recent weight loss. There was a questionable faint slate-grey pigmentation of the skin over the entire body. The heart border was percussed 13.7 cm. to the left of the midclavicular line, with the point of maximum impulse in the fourth interspace. A Grade I systolic murmur was heard at the apex and in the aortic area. The lungs were clear. The abdomen was distended, and a fluid wave obtainable. The liver edge was palpable 7 cm. below the xiphoid process and 3 cm. below the costal margin; the liver was hard and slightly tender. There was also tenderness in the right lower quadrant. There was a general hyporeflexia. Romberg and Babinski tests were negative.

The temperature, pulse and respirations were normal. The blood pressure was 128 Systolic, 80 diastolic.

The urine showed a brick-red test for sugar and a three plus test for acetone. A potassium ferrocyanide test for hemosiderin was negative.

Examination of the blood revealed a red-cell count of 3,700,000, with a hemoglobin of 11.9 gm., and a white-cell count of 5900, with a normal differential. The fasting blood sugar was 288 mg. per 100 c.c. The carbon dioxide was 28 milli-equiv. and the chloride 90 milli-equiv. per liter. The sodium was 137.0 milli-equiv. per liter. The nonprotein nitrogen was 20 mg., the phosphorus 3.0 mg., the alkaline phosphatase 3.2 units, and the total protein 6.15 gm. per 100 c.c. with an albumin-globulin ratio of 1.1. The insulin tolerance test, starting at 206 mg. glucose per 100 c.c., showed reduction to 126 mg. in two hours. A Wilder test for adrenal insufficiency was negative. The van den Bergh reaction was 0.8 mg. direct and 1.2 mg. total. The cephalin flocculation test was three plus in forty-eight hours. The bromsulfalein test showed 22 per cent retention. The blood Hinton test was positive. The 17 ketosteroid excretion was 1.8 mg. in twenty-four hours. The spinal-fluid Hinton

reaction was positive, but the Pandy and gold-sol tests and the cell count were normal. The stool was guaiac positive in two out of four specimens taken. A potassium ferrocyanide skin test and biopsy of the skin were negative for hemosiderin.

X-ray examination of the chest revealed areas of increased density at both bases. The heart was not remarkable. A gastrointestinal series was negative. A cardiette electrocardiogram showed a normal rhythm at a rate of 100, with leftaxis deviation. The PR interval was 0.13 to 0.14 second. T_1 and T_2 were flat, and T_3 slightly inverted. TCF_2 and TCF_4 were inverted, and TCF_5 was diphasic.

The patient improved somewhat on a diabetic regime. On the tenth hospital day he developed slight ankle edema, which persisted. He was discharged after twenty days to the Diabetic Clinic, where he was finally regulated at 40 units of protamine zinc insulin and 15 units of regular insulin daily and a high-carbohydrate, low-sodium diet.

(Second admission one month later.) The patient did well until seven days before entry, when he developed a sore throat and increasing weakness. He also had a dizzy sensation when he leaned over. Five days before entry he noticed increasing anorexia and a sharp, constant pain in the right upper quadrant of the abdomen. He had not been drinking much fluid during that time, and his urinary output gradually decreased. The urine also became quite dark in color and gave positive tests for sugar and albumin. He had no dyspnea or orthopnea.

On examination the patient showed a great increase in the slate-grey pigmentation of his skin, with a cyanotic hue. especially marked over the upper chest, arms and face. His face, which had been thin and drawn on the previous admission was puffy and swollen. The veins of the neck and right arm were strikingly distended. The scleras were muddy. The throat was slightly injected. The chest showed signs of bilateral pleural effusion, and occasional crackling rales were heard at the bases. The heart signs had not changed since the first admission. The abdomen showed marked ascites making palpation difficult, but the liver edge was felt 10 cm. below the costal margin in the midclavicular line. There was slight ankle edema. The patient was able to lie quite flat in bed without dyspnea.

The temperature and respirations were normal. The pulse was 94. The blood pressure was 130 systolic, 80 diastolic.

Examination of the blood revealed a red-cell count of 4,000,000 with 11 gm. of hemoglobin. The white-cell count was 15,000, with 66 per cent neutrophils and 30 per cent lymphocytes. The blood sugar was 126 mg. per 100 c.c., rising to 364 mg. the next day. At that time the nonprotein nitrogen was 62 mg. per 100 c.c. and the carbon dioxide 22.5 milli-equiv. per liter. The total protein was 7.0 gm. per 100 c.c. with an albumin-globulin ratio of 1.03. The urine showed a green test for sugar and a trace of albumin, but no acetone. The specific gravity was 1.020. The venous pressure in the right arm was equivalent to 340 mm. of water.

An x-ray examination of the chest revealed that since the last examination the diaphragms had become elevated, and this may have accounted for the increase in the size of the cardiac shadow. The cardiothoracic ratio was now 17.5: 28.0. The superior mediastinum was somewhat wide. The right leaf of the diaphragm was obscured by irregular areas of increased density in the lung fields, which were probably plate-like areas of atelectasis. There was a little fluid in the right pleural sinus.

On the second hospital day ,the patient showed pitting edema of the legs up to the knees. Despite penicillin and x-ray therapy to the upper mediastinum at the rate of 200r per day for four days, he continued to go down hill rapidly and gradually lapsed into stupor.

An electrocardiogram on the fourth hospital day showed a normal rhythm at a rate of 75, with right-axis deviation. The PR interval was 0.17 to 0.18 second. S_1 and S_2 were prominent. T_1 was upright. T_2 was low upright and T_3 slightly inverted. CF_2 and CF_4 showed a small R. and inverted T. S. was prominent in CF_5. There was a tendency to low amplitude in all leads.

The patient died on the fifth hospital day.

DISCUSSION

Dr. Henry L. Franklin:

This protocol is that of a 46-year-old Lithuanian-American machinist who entered the hospital because of fatigue, weakness and abdominal pain not related to meals. The high points in the positive findings are diabetes, enlarged liver, with acites, some evidence of interstisil nephritis on the last admission just prior to death. He had a slight grey pigmentation of the skin of the entire body, evidence of pressure in the chest or medisiastium. In addition to these things he had had syphilis perhaps for 20 years, and a positive spinal fluid upon the last admission with some evidence of active central nervous system syphilis. He was also an alcoholic. He had had delirium tremens at one time. Were it not for the fact of the skin pigmentation, which does not fit into any picture of the various skin lesions or discolorations that I have been able to find accompanying syphilis, I would conclude that all of the pathology which is present in this case is due to syphilis, plus alcohol.

We all know how frequently syphilis can be the cause of hepatitis or liver cirrhosis, with an accompanying nephritis and diabetes due to vascular deficiency in the pancreas. The laboratory work does not help us very much beyond establishing a diagnosis of syphilis and diabetes. The x-ray gives us some positive evidence concerning the chest, namely a suspicion of widening of the mediastinum and possibly an obstruction to some of the air passages leading to adelectasis. The heart outside of having a systolic murmur apparently was normal, as was also the blood pressure. The question of the skin pigmentation, which was relatively mild on the first admission, showed marked deepening on the second admission a month or two later, and if it were not for the fact that a biopsy of the skin taken on the first admission was found to be negative for hemosideran, one would conclude that at least one diagnosis would be hemochromatosis. It should be noted, however, that upon second admission when the pigmentation had become much deeper, no further biopsy was done. In spite of this I think we should review this disease of which there is something in the literature.

This disease, now known as hemochromatosis, was first described but not named by Trousseau in 1865 in the course of a clinical lecture on diabetes. The next case was described by Troisier in 1871 under the title of "La Cirrhose hypertrophique pigmentaire dans le diabete sucre." (This is French. If any of you do not understand how to speak or understand French, raise your hand and I will translate it.)

It was also given the name of a bronze scirosis or a bronze diabetes. Most of the literature up to the turn of the century comes from French and German sources. Up to 1935 about 350 more or less proved cases had appeared in the literature throughout the world. It is, therefore, a rare disease. It appears to be not a complication of diabetes, but a cause of it. It is a disorder of the pigment metabolism, probably of a hereditary nature. A full-blown case exhibits a triad consisting of a slate-gray pigmentation of the skin, an enlarged liver and diabetes. Many of the cases reported have lacked one of these conditions in the beginning, such as the lack of diabetes or the enlarged liver, or the pigmentation, but eventually the triad is complete.

Butt and Wilder reported the observation of 30 cases during 15 years at the Mayo Clinic. In all of these cases a diagnosis was made or clinched by the demonstration of iron in sections of the skin removed for biopsy. Althousen and Kerr found three cases in 60,000 admissions at the University of California Hospital, and three cases were found among 106,000 admissions at the Johns Hopkins Hospital.

The males seem to predominate about 30 to 1 over females, and the age patters is generally over 35 years to age 70. As to edeology there first must be a familial or hereditary tendency. One instance was reported in which two brothers were effected with three other brothers and the mother showing some evidence of the disease.

Beyond this inborn constitutional abnormality, the cause of the disease is obscure. It has been found to be rather prevalent in the Black Forest region of Germany, probably due to the extensive inbreeding. The disease does not depend upon any abnormal destruction of blood, nor upon a primary cirrhosis of the liver. Abnormal retention of iron occurs in this disease, but it is not associated with any demonstrable failure of the excretion of the bowel or kidneys. It was believed at one time that it might be due to poisoning of the liver by copper because a larger concentration of copper was found in these livers than in normal livers, but this theory has been discarded. It is believed by some investigators that the disease is started by some substances which poison the liver in individuals who have inherited the tendency, for instance alcohol may be the precipitating factor in some cases.

Concerning the pathology, hemosiderin or hemofuchsin is found largely distributed throughout the organs and tissues of the body. In general the C. N. S. is free of deposits. In the three cases reported by Kerr, the patients exhibited evidences of hypogonadism as evidenced by softening of the skin, thinning of the hair and loss of libido. The testes were found to be soft and atrophic and an autopsy hemosiderin particles were found in the anterior hypophysis, but none in the testes.

The liver is usually large, it is a rusty red, and has a hobnail surface. The iron particles produce a destruction of the liver cells with a bifrosis and there is at the same time a regeneration of new cells. It is a similar destruction on the pancreas which produces the diabetes. The heart muscle is usually affected and may show evidence of weakening and hypertrophy, and it

is the presence of the iron particles in the skin that gives it the characteristic color and the finding through biopsy that makes the diagnosis.

The pigmentation is sometimes confused with that of Addison's disease. There are usually no changes in the blood pressure or of the blood count. The treatment is that of diabetes, and the prognosis is only fair; some of them, however, have been known to go for 10 to 15 years provided their diabetes was kept under control. The chief cause of death is diabetic coma.

With this brief review of hemochromatosis one would be inclined to pick it as a certain diagnosis, however, the negative biopsy casts a considerable doubt. Having practiced medicine for a good many years, and having had some experience with laboratory reports as well as some data that we get in these protocols, I am inclined to discount the negative biopsy report. This biopsy was done upon the patient's first admission to the hospital, at which time the pigmentation of the skin was very faint. Later when he was re-admitted to the hospital with a more severe skin discoloration, there is no record that the biopsy was repeated.

He had had syphilis for 20 years, and about 15 years before the first admission he had what was believed to be a gumma on the side of his nose. The antiluetic treatments had been haphazard and insufficient. If we can find some way to discount or forget the skin pigmentation all of the other pathology, including that of his chest, could fit very well into a diagnosis of syphilis. Later his spinal fluid became positive and he complained of some inability to know where he was in the dark, and there was some tremor of his hands and eyes, with pains in the pit of his stomach, which could very well have been the symptoms and manifestations of tabes. We could be a little more clear on that point if we knew something about his pupillary reflexes, condition of optic nerves, direct and peripheral vision. We are only told that scleras were muddy. These conditions could also have been due to peripheral neuritis due to chronic alcoholism.

Now we come to the pathology which probably killed him, which was probably in the chest. It is very evident that there was something there. I shall not bore you by going into the classification of tumors of the chest and media stinum because this subject was ably covered at our meeting last Monday. Suffice it to say, though, that the engorged veins of the neck and right arm and the puffiness of his neck and face, which previously had been very flabby, and the increased venus pressure of the right arm strongly indicates an obstruction of the superior vena-cava. Because the man had syphilis we think of aneurism of the aorta in the descending part of the arch which lies in close proximity to the vena-cava. We have nothing, however, to support this hypothesis except the fact that he had lues, and lues produces aneurisms. The x-ray does not help us; there is no record of a fluoroscopic examination, there was no tracheal tug or evidence of pulsation, or other findings which might help us in making a diagnosis of aortic aneurism. The x-ray states there was some evidence of ateleceasis in the right lung field and this also could have been due to the pressure of an aneurism.

Also to be considered are syphilitic inflammatory lesions such as gummas, or enlarged mediastinal glands. He had lost considerable weight, which might cause us to think of cancer or some other malignant neoplasm, but this is probably not very significant because he had sufficient other reasons for losing weight. He may have had a cancer of the bronchus, but I hardly think we would get two cancers of the lung two weeks in succession. The notation that he was given penicillin and x-ray therapy to his superior media stinum would indicate that some form of glandular neoplasm was suspected, and that he had an infection, the latter he undoubtedly had.

Referring again to the skin pigmentation and the likelihood of its being confused with Addison's disease, I think it very unlikely that Addison's played any role in it whatever. There was no lowering of the blood pressure, no positive history of T.B., which causes 80 to 90% of them. The pigmentation was not characteristic as regards location, and finally the test for it was negative.

To sum up. This is a long protocol, there are many things that I have passed over without mentioning, in order to be brief. Much could be written about the various conditions affecting the liver, kidneys, pancreas, and the possibilities in the chest. Syphilis is perfectly capable of producing everything in this man that we have record of, with the skin pigmentation included. Chronic alcoholism, plus some other disease in the chest, such as neoplasm, could explain it.

Since we have to get on a limb, I am going to guess that he had:

Hemochromatosis

Aneurism of aorta, or possibly a syphilitic inflammatory lesion in mediastinum.

Also Chronic nephritis

Terminal pneumonia,

Though he may have died a diabetic death as so many of these patients do.

Dr. Robert S. Flinn:

This is a story of a 46-year-old machinist with fatigue, weakness and abdominal pains. At the age of 22 he developed syphilis. And eight years before entry he was treated for a skin lesion obviously luetic in origin. Six years before entry he received bismuth injections and again three years before entry he received eight arsenic and 37 bismuth injections which were followed by jaundice. At that time the symptoms of weakness, nervousness and pain began. Five months before entry he noticed increased weakness, fatigue and pain in the lower abdomen.

On admission, the patient had questionable faint slate-grey pigmentation of the skin over the entire body. His liver was enlarged; ascites was present and he had a high blood sugar with evidence of acidosis.

The chloride, sodium, non-protein-nitrogen, phosphorus, alkaline phosphatases and total proteins were with normal limits. However, the 17 ketosteroid excretion was below normal 7.27 mg. This disease is seen in male hypogonodism, as well as Addison's. The spinal fluid Hinton was positive, but a potassium ferrocyanide skin test and biopsy of the skin were negative for hemosiderin and a potassium ferrocyanide test for hemosiderin in the urine was likewise negative. Both the cephalin flocculation test and the bromsulphtholin test were abnormal and suggest lues disease. A Wilder test for adrenal insufficiency was also negative. This test consists of placing the patient on a diet containing 1.5 grams of sodium chloride and approximately 4 grams of potassium per day. On the first and second day of the test 40 c.c. of liquid per kilogram of body weight is administered. On the third day of the test 20 c.c. of fluid per kg. is administered prior to 11:00 A. M. The important urine specimen for analysis is that selected from 7:00 A. M. to 11:00 A. M. on the third day of the test. Addison's disease can be excluded if the concentration of sodium and chloride in the four hour specimen on the third day of the test is below 100 mg. for sodium or if there have been no significant change in the clinical condition of the patient. A sudden reduction in blood pressure or clinical symptoms of marked dehydration are danger signals upon which the test should be discontinued immediately and the patient given sodium chloride infusions and adrenal kortex.

X-ray examination of the chest revealed areas of increased density at both bases. The heart was not remarkable. The electrocardiographic tracing was suggestive of left ventricular strain, also pericardial effusion. The patient was given treatment at this time for both his diabetes and for his congestive failure.

When he entered the hospital one month later, the clinical picture had changed appreciably. There was marked increase in the slate-gray pigmentation; the face was puffy and swollen and the abdominal cavity contained more fluid. The degree of acidosis was greater, the non-protein-nitrogen had risen and the venus pressure was almost three times greater than normal. A diagnosis of mediastinal tumor was evidently entertained since the patient was subjected to x-ray therapy to the upper mediastinum. In spite of this, the patient deteriorated rapidly and died five days after admission to the hospital.

The symptom complex of skin pigmentation, enlargement of the liver, and presence of diabetes mellitus makes a diagnosis of hemochromatosis practically certain. The finding of hemosiderin in skin biopsy or the presence of hemosiderin in the urinary sediment is helpful in diagnosis, but negative results are by no means conclusive evidence that the disease is not present.

Hemochromatosis may be considered to be due to "inborn error" of metabolism. It is characterized by a progressive interstitial fibrosis and cirrhosis in various tissues and organs, particularly the liver, spleen and pancreas. The deposition of an iron containing pigment hemosiderin in nearly all tissues and a deposition of an iron-free pigment hemofuscin in smooth muscle and connective cells. It occurs almost exclusively in males and is usually noted between 45 and 55 years of age. There is a history of indulgence in the use of alcoholic beverages in a large number of cases. Mallory has shown that in animals hemochromatosis may be produced by means of chronic poisoning with copper and has suggested that such might be the basis of the disease as

seen in man. The copper, presumably, representing a contaminant in the alcohol consumed.

The symptoms commonly complained of are weakness, loss of weight and abdominal pain. The pigmentation is usually most marked on the face, the extensive surface of the lower legs and forearms and the back of the hands, probably due to the greater exposure to sunlight of these parts of the body. The liver is often greatly enlarged, extending to or below the level of the umbilicus. The spleen is 40% enlarged and ascites may be present. A curious and rather constant feature of the disease is the loss of body hair in advanced cases, there being at times almost complete disappearance of hair from the arms, legs axillae, chest, abdomen and from the pubic region. Genital hypoplasia is frequent enough to be considered a fourth important feature of the disease. A probable explanation of the hypogonadism in hemochromatosis is that the activity of the anterior lobe of the pituitary glands may be depressed by deposits of hemosiderin in a manner comparable to that in which the activities of the islands of Langerhans is depressed.

Since the patient under discussion has the triad of skin pigmentation, enlargement of the liver and diabetes mellitus, I do not believe that we are justified in making any other diagnosis than hemochromatosis in spite of the negative laboratory findings. In considering a differential diagnosis, Addison's disease must be ruled out. This I think we can do by the history, the lack of hypotension, the negative Wilder test and the type of pigmentation present. Argyria must also be considered. But here again the history, the course of the disease and the character of the pigmentation makes such a diagnosis unlikely. My diagnosis, therefore, is hemochromatosis.

DIFFERENTIAL DIAGNOSIS

Dr Walter Bauer: The lesion on the nose was evidently a tertiary lesion of syphilis which disappeared following the administration of potassium iodine. He drank a large amount of water and had a urinary frequency of 12 times a day. This is the first suggestion that the patient had hyperglycemia and glycosuria. Did anyone ever feel the spleen in this patient?

Dr. Tracy B. Mallory: It is not recorded.

Dr. Bauer: Despite his difficulty in walking, unsteadiness, and not knowing where his feet were, the Romberg and Babinski signs were negative. Is anything said about his eyes? Did he have Argyll-Robertson pupils or any other neurologic abnormality?

Dr. John B. Stanbury: All neurologic findings were normal.

Dr. Bauer: Is the value of 126 mg. in the insulin tolerance test higher than one would expect, or is it within normal limits?

Dr. Stanbury: It shows insulin sensitivity, but not insulin resistance.

Dr. Bauer: It is obvious that an attempt was made to rule out Addison's disease as well as to gain evidence that hepatic impairment was present. The accumulated information indicates that he had hyperglycemia, glycosuria and hepatic impairment. The heart was 13.7 cm. to the left. Did he have fairly marked ascites?

Dr. Stanbury: Yes.

Dr. Bauer: So that the cardiac enlargement was thought to be due to displacement?

Dr. Stanbury: We thought he had cardiac enlargement.

Dr. Bauer: I am told that the first EKG findings were consistent with coronary disease and pericarditis, but might be found in other conditions. Evidently they did not persist. Was the diabetes reasonably well controlled?

Dr. Stanbury: Quite well controlled without difficulty.

Dr. Bauer: Can you describe the slate colored pigmentation in more detail?

Dr. Stanbury: The striking feature in this patient was the pigmentation. When he first came in he had a faint slate-gray pigmentation, most marked in the thorax and face. At the second admission two months later, we thought that the pigmentation had increased, extending over the lower part of the body. In addition the upper extremities and face had almost black cyanosis. It was a very striking picture.

Dr. Bauer: This man has evidence of obstruction of the superior vena cava, probably in the region of the rt innominate artery, without associated symptoms. The physicians in charge must have thought the patient had some type of infection because penicillin was administered; the temperature was normal, however.

The white count was not unlike that seen in many patients with cirrhosis of the liver, 5000; yet it later rose to 15,000.

The superior mediastinum was somewhat wide. I should like to see the chest films.

Dr. James R. Lingley: I cannot add anything

to the record. This film shows a high diaphragm which caused the apex to be pushed out slightly, but I doubt that the heart was enlarged at that time. There are bands of density at both bases, perhaps due to partial atelectasis of the lower lobe. This film two months later shows what I think is an actual increase in the size of the heart, despite the high position of the diaphragm.

Dr. Bauer: It is consistent with atelectasis?

Dr. Lingley: More so than with effusion, because the outline is preserved. There are increased density, atelectasis at both bases and fluid in the rt costophrenic angle.

Dr. Bauer: What can you say about the mediastinum?

Dr. Lingley: I think it is wide because of the position of the diaphragm, the great vessels being spread out over a greater area.

Dr. Bauer: I thought it fair to assume that this man had contracted syphilis at the age of 22 and that antisyphilitic treatment was not given until the appearance of a tertiary lesion. It also seems fair to conclude that he had never been adequately treated. It is rather difficult to avoid diagnosing central nervous system syphilis, probably tabes dorsalis, on the basis of the symptoms and the positive Hinton test on the spinal fluid. I suppose that the latter was relatively inactive or a burned out process.

In addition this man exhibited obvious hepatic enlargement and ascite. Hepatic impairment was present as demonstrated by all tests employed. There were also hyperglycemia and glycosuria. I prefer to explain these findings on the basis of hemochromatosis, despite the negative skin biopsy. One might rightly argue that this man had been exposed to any number of agents that could have injured his liver. He developed jaundice while receiving arsenic. Whether this was an arsenical hepatitis or a coincidental infectious hepatitis, one cannot determine. If infectious hepatitis, could it have been syringe transmitted? He also gave a history of excessive alcohol intake, which is commonly found in people with cirrhosis of the liver, and last but not least he had syphilis, which can also cause liver damage. The description is not that of gumma of the liver. Between the first and second admissions he developed what I should interpret as obstruction of the superior vena cava, probably at the junction of the rt innominate vein, because the findings were more marked on the right. This came on without any symptoms, so I think that it is reasonable to assume that he did not have a mediastinal tumor. He probably had an idiopathic thrombosis of the superior vena cava, which, though rare, can occur. If one entertains that diagnostic possibility, one might ask whether this man had an ascending thrombosis of the vena cava, which first became evident when impaired venous return from the head, neck and arm was noted. I should think that this was rather unlikely in view of the fact that the PX does not suggest findings of the type we expect to encounter in a man with a gradually ascending thrombosis of the vena cava.

There is one finding that I have not explained, namely the cardiac enlargement. He never exhibited the signs of aortic regurgitation. There have been a few cases of myocarditis reported as being due to hemochromatosis, and such an explanation might apply in this case. I am well aware that it is exceedingly rare. I say that we are dealing with a man who had syphilis that was never treated properly. He probably has CNS syphilis that was quiescent or burned out. In addition he had hemochromatosis and obstruction of the vena cava superior; the exact cause of the latter I do not know, but I do not believe it was due to a mediastinal tumor. I assume that this man went into coma of the type that is seen in hepatic insufficiency, although the record is not clear on this point.

I have often told Dr. Mallory that these conferences would test our diagnostic acumen more accurately if he handed one of us the record and asked us to discuss it, instead of giving it to us several days in advance. I am glad this system was not in effect today. Although I have read it four times I am not absolutely certain of my interpretation. For instance, I forgot to mention the symptoms referable to the bowel and the finding of the two positive guaiac tests. One might argue that we had overlooked a malignant lesion of the bowel that metastasized to the mediastinus. This is possible; the clinical picture, however, is complicated enough and I prefer to limit my discussion to the above possibilities.

Dr. J. H. Means: Are you interested in the body hair?

Dr. Bauer: Yes, I should like to know about it and also about the prostate. I am still dis-

turbed that the pigmentation is spoken of as slate colored and not brownish, but I do not believe that one negative biopsy should scare us out. Hemochromatosis is not always demonstrated in the skin; it can be confined to viscera. ,

Dr. Benjamin Castleman: Dr. Aub saw the patient and brought out the idea that if he had cirrhosis on a pigmentation basis perhaps he had developed a hepatoma. Hepatoma is quite prone to extend into and block the vena cava.

Dr. Bauer: I thought of hepatoma last night but not this morning.

Dr. Jones: This would be an ideal case for an inspiration biopsy of the liver.

Dr. Mallory: One was done.

Dr. Bauer: I am glad I did not know about it.

Dr. Mallory: We thought we should let Dr. Bauer have the pleasure of discussing the case without knowing the answer. As a matter of fact, when the iron reaction was performed on the biopsy specimen the liver cells and those of the bile duct epithelium showed blue granules a characteristic picture of hemochromatosis.

CLINICAL DIAGNOSIS

Hemochromatosis.

Dr. Bauer's Diagnosis: Hemochromatosis. Obstruction of superior vena cave. Tertiary syphilis. CNS syphilis, probably tabes dorsalis.

Anatomical Diagnoses: Hemochromatosis generalized, including liver, pancreas, lymph glands, thyroid and pituitary glands and heart. Cardiac hypertrophy with marked dilatation. Mural thrombus of right auricle. Ascites. Splenometaly. Hydrothorax, Esophageal varices. Thrombosis of right cephalic vein.

PATHOLOGICAL DISCUSSION

Dr. Mallory: At autopsy we found a considerably enlarged liver weighing 2380 gms. It was dark chocolate brown. The lymph nodes in the hilus were equally dark brown, as were the pancreas and heart.

All of them were full of hemosiderin. Microscopically it was evident that the thyroid, adrenal and pituitary glands were involved. It is rather characteristic of hemochromatosis that pigment deposits are quite marked in most of the endocrine organs. The heart was dilated and extremely flabby, but showed no microscopic abnormality other than moderately severe iron deposits. At autopsy we did not find a thrombosis of the superior vena cava or any of its large tributaries. The right cephalic vein contained a recent jelly-like dark red clot, which was not attached to the intima and which extended distally from its termination in the axillary vein for about 5 cm. That seems to explain the distention of the veins in the right arm but not those in the head and neck. There was a thrombus in the right auricular appendage but I doubt that it was large enough to have caused obstruction at the orifice of the vena cava. Consequently we are left without an explanation for the apparent upper mediastinal syndrome.

Dr. Jones: Occasionally in any case of cirrhosis, particularly with a great deal of fluid, and if the patient is horizontal and the head not elevated, the face is puffy and there is marked edema, which disappears when the patient is elevated for 12 hours. This patient also had ascites and peripheral edema.



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PERSONAL NOTES

DR. WALTMAN WALTERS, head of the Division of Surgery of the Mayo Clinic, spoke to the Pima County Medical Society on "Lesions of the Biliary Tract."

DR. TRACY J. PUTNAM, Chief of the Department of Neurosurgery at Cedars of Lebanon Hospital, Beverly Hills, California, spoke on "Operative Treatment of Paralysis Agitans and Other Dyskinesias," and later lectured at the Veterans Hospital on "Recent Developments in the Treatment of Neurological Diseases."

The serious injury to **DR. J. M. HESSER** of Benson left the communities of Benson, St. David, and Pomarene without a physician.

DR. FREDERICK OAKES offered to come out of retirement, and the State Board of Medical Examiners immediately granted him a temporary license to practice there.

Several days later **DR. JAMES H. CONNELLY** visited Benson on a vacation, was told of the situation by local businessmen, agreed to open a practice and, in turn, was approved by the examining board. Dr. Connelly was a student at the University of California, a graduate of the medical school at St. Louis University, had an interneship at Santa Barbara and a residency at San Luis Obispo.

DR. A. E. CRUTHIRDS of Phoenix spoke on the treatment of chemical and heat injuries to the eyes at a meeting of ophthalmologists in Los Angeles. He pioneered the use of a sulfhydryl compound which is now widely used with great success as a quick-acting remedy.

DR. PAUL G. HATTERSLEY of San Francisco gave a lecture to a group of physicians and laboratory technicians at the University of Arizona. The Red Cross Regional Blood Center was the host, the people from laboratories in Pima, Gila, Greenlee, Pinal, Santa Cruz, Cochise, and Graham counties attended.

Dr. Hattersley is director of the Hematology Clinic at Stanford University, and is one of the three advisory consultants for the Pacific Area Blood Program and its eight regional centers.

He also spoke before the Pima County Medical Society on "Rh Factor."

The Council of Social Agencies in Tucson has arranged to set up an independent Visiting Nurse Service in March 1951. This Service will begin to function when the Red Cross abandons its service. Funds will be raised through the Community Chest drive.

The Arizona Tuberculosis and Health Association held its yearly meeting in Mesa. Among the speakers was **DR. R. I. PIERCE** of the U. S. Public Health Service, Washington, D. C., and Miss Clarissa Boyd of the National Tuberculosis Association.

The Arizona group has added Mrs. Frances Woodward, formerly a health educator in Davidson County, Tennessee, to its northwestern area staff.

A symposium of three physicians discussed tuberculosis and other health problems before the Tucson League of Women Voters. The panel consisted of **DR. LEWIS H. HOWARD,** city-county Health Officer, who described the status of public and private facilities for care of tuberculosis, and suggested the employment of more public health nurses to educate patients who live at home; **DR. S. S. ALTSCHULER,** Medical Director of the Veterans Hospital, who urged the use of proper medical therapy in addition to climate and diet; and **DR. FRANCIS J. BEAN,** Superintendent of the Pima County General Hospital, who urged that people improve the hospital facilities by becoming familiar with the needs.

DR. JAMES R. SICKLER addressed the School Health Council of Tucson on the proposed federal legislation in providing health service for children. The Council subsequently opposed the bill, and oppose federal supervision of federal aid.

DR. EDITH LORD, director of mental health in the Arizona Health Department, conducted a mental health conference in Tucson for three days. She was joined in the courses and panels by several laymen and **DR. ROBERT HEWITT,** a psychiatrist.

DR. W. D. SPINNING will become medical director of the Presbyterian Mission at Ganado when **DR. C. G. SALSBURY** retires in the early summer. The superintendency will be taken over by Mr. Joseph Poncel, head of the Tucson Indian Training School for the past six years.

The University of Arizona is making a survey of nutrition on the Papago Indian Reservation. **DR. GEORGE M. DE YOUNG** will head a team of local, state, and federal workers. Dr. A. R. Kemmerer, head of the University Experiment Station Nutrition Department, has assigned Dr. M. G. Vavich to direct the project. Complete examinations of 250 youths will be followed by a

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thorough dietary history. The Papagos have been a tribe with constant habits and diet for more than 100 years.

The American Journal of Nursing for March 1950, contains an article "Aseptic Technic in the Care of Tuberculous Patients," by **DR. W .H. OATWAY, JR.**, of Tucson and Los Angeles. The article was prepared by request after publication of a similar report in ARIZONA MEDICINE for May 1949.

DR. AUDRY URRY, Phoenix, addressed the March Staff Meeting of Good Samaritan Hospital on "The Selection of Anesthetic Agents in Cardiac Patients." **DR. WALLACE REED,** Phoenix, spoke on "Emergencies in Anesthesis."

CLARENCE FEHLING, Phoenix Attorney, discussed the subject of "Malpractice" at the March 27th Good Samaritan meeting.

MR. JAMES O. KELLEY, Executive Secretary of the Milwaukee, Wisconsin Medical Society, spoke to the St. Joseph's March 10th Staff meeting on "Medical Relations." **DR. J. COFFEY** gave a paper on "Antibiotics in Pediatrics with Special Reference to Communicable Disease."

DR. LEE EHRLICH, Phoenix, presented a case of sodium depletion with uremia in a patient with severe hypertensive heart disease, with previous coronary occlusion, at the March St. Monica's Staff Meeting. Surgical aspects of the concomitant acute cholecystitis in this patient were discussed by **DR. W. H. CLEVELAND,** Phoenix.

A provocative discussion at the St. Monica's March Staff Meeting followed **DR. H. A. SIEGAL'S** presenting of "A Death in a Cardiac Patient Undergoing Caesarian Section."

DOCTOR ARCHIE E. CRUTHIRDS gave an Instruction Course at the Research Study Club in Los Angeles in January. This is a Study Group of 400 or 500 E. E. N. T. Doctors from all over the United States who gather each year to familiarize themselves with new procedures.

Doctor Cruthirds will also give an Instruction Course in San Francisco in May, at the Pacific Coast Oto-Ophthalmological Society Meeting there.

DR. MARCY L. SUSSMAN contributed a section on Angiocardiography to the recently published Volume II of MEDICAL PHYSICS.

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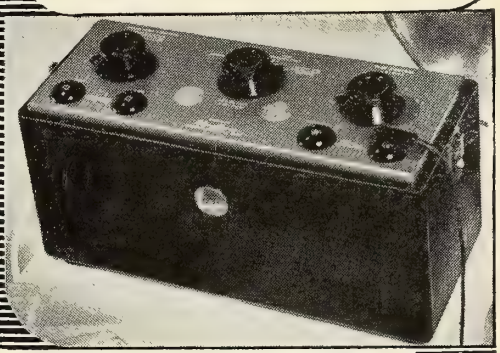
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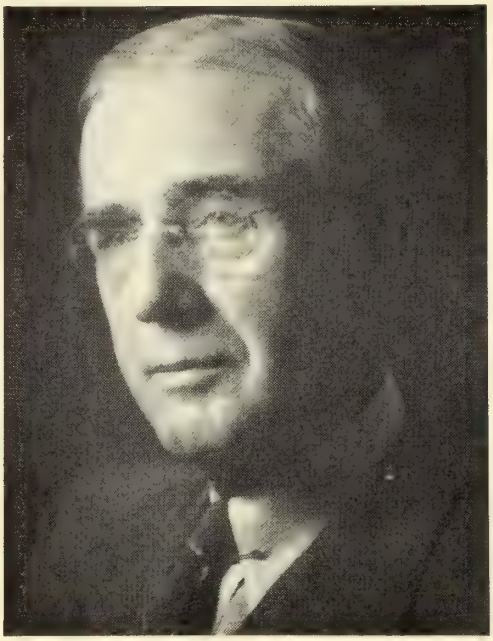
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Obituary



HARRY B. GUDGEL, M. D.; 1876-1949

Harry Baldwin Gudgel, son of Dr. John F. and Cynthianna Baldwin Gudgel, was born in Hazleton, Indiana, October 7, 1876. He attended grammar school and high school in Hazleton and the Normal School for teachers at Danville, Indiana, after which he taught school for three years in Hazleton. In 1899 he entered the Medical College of Indiana at Indianapolis. Later he attended the Louisville (Kentucky) Medical College, and in 1904 he graduated from the College of Physicians and Surgeons of Chicago. Following graduation he practiced medicine in Hazleton for twelve years. He then practiced in Princeton, Indiana until the outbreak of World War I.

After his war service which included overseas duty, he came to Phoenix, where he endeared himself to his patients, friends, and colleagues with those qualities which earned for him the approbation of a "gentleman and scholar."

At various times he was active in Boy Scout work and in the Kiwanis Club. For many years he headed the Medical Staff of the Salt River Valley Water Users Association. Always he conducted his practice for the best interests of his patients.

A member of the Maricopa County Medical Society, the Arizona Medical Association, and the American Medical Association, Dr. Gudgel is missed by all who had the good fortune to know him.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

Organized medicine, at the state level, can become fairly unconscious of some of its official workings. . . . Perhaps a complaint is permissable now and then—even necessary. . . . When a person is obviously qualified to practice medicine, and (usually after considerable travail) becomes eligibel to practice, there seems to be little profit or logic in the delaying, niggling, picayune things which sometimes defer the actual granting of a license. . . . A famous and outspoken hostess used to say to departing guests "If you're going to leave, leave; if you're going to stay, stay; but for goodness sakes, don't OOZE out!" The Board of Examiners could be urged, in a similar vein, to let the eligibles in, but definitely.

The flood of articles on diagnosis of carcinoma by examination of various secretions and exudates has been very valuable. . . . A name for this general procedure has been coined by its originator ,Dr. George N. Papanicolaou of Cornell University—"EXFOLIATIVE CYTOLOGY."

ANTIBIOTIC NOTES — Chloramphenicol (chloromycetin) is effective in treatment of WHOOPING-COUGH. Fever usually is gone by the second day, cough paroxysms by the third to sixth day. . . . The drug may be given by mouth or rectum. The total rectal dose varies between 1.5 and 4.5 grams, depending on body weight.

Payne, in Bolivia, has shown that it is soluble in propylene glycol, and may be given intravenously in that vehicle. This solubility information has allowed treatment of a case of TYPHOID with intestinal perforation which recently occurred in Los Angeles. . . . Such a complication is often fatal, since oral medication must be discontinued. The case recovered after chloramphenicol was continued I.V.

Chloromycetin has also been reported by Chittenden of Detroit to be very effective in BACILLARY URINARY TRACT INFECTIONS where other drugs had failed, even in the presence of calculi and obstructive prostates. Penicillin and/or a sulfonamide may be needed to clear concommitant coccal organisms.

Recent reports confirm the specific effectiveness of aureomycin for HERPES ZOSTER. . . . Finland and colleagues of Boston have shown that when 1 gram was given by mouth four times a day, for two to four days, in the first two weeks after the eruption, the lesions healed and postherpetic pain was prevented. . . . (If the patient has little pain and is in good shape, this expensive and sometimes nauseating therapy can be omitted). . . It is of no value for herpes of the lips.

Civilian physicians are being sought, as of March 1950, for the PANAMA CANAL ZONE. . . A large number of army medical officers are being withdrawn, and a deficiency will exist. . . . Starting salaries, $6,750 to $9,500; transportation for physician and family is provided; and information may be had from B. F. Burdick, Chief of Office, Panama Canal, Washington 25, D. C.

There has been no confirmation so far of the claim by Rothbard, of Montefiore Hospital in New York, that the DUBOS-MIDDLEBROOK TEST is 92 per cent accurate in distinguishing active from inactive tuberculosis. . . . His series included 1,200 cases of various diseases of the chest. . . . The test involves serum from the patient in half a dozen dilutions, red blood cells from sheep sensitized with old tuberculin, heat, and an overnight waiting period. . . . Agglutination of the RBC occurs in active tuberculosis.

NOTES ON THE CALIFORNIA TUBERCULOSIS AND HEALTH MEETING, SAN DIEGO— A good meeting, perhaps as good as the nationals. . . . John Steele of Milwaukee reported that a careful PARAFFIN PLOMBAGE is a safe and effective operation for some cases of apical tuberculosis, and an extra-pleural operation with LUCITE SPHERES need not be as hazardous as has been said. . . . A. C. Daniels of San Francisco finds CAVERNOSTOMY helpful, but it is probably supplanted by resection. . . . So is the MONALDI, said J. H. Cope of Oakland. So is OPEN PNEUMONOLYSIS, said Jane Skillen of Olive View. . . . DECORTICATION will find its place, reported Joseph Weinberg, Van Nuys. . PULMONARY RESECTION is sometimes necessary and effective for COCCIDIOIDOMYCOSIS. Bert Cotton of Los Angeles found in his 31 resections (the largest series ever reported). . . Pulmonary RESECTION FOR TUBERCULOSIS has definite indications, can now be done with considerable safety. The most frequent complications and deaths occurred in the group to which streptomycin could not be given, said Joseph Robinson of Los Angeles. . . . LOBECTOMY can be accompanied by a "plastic" (partial thoracoplasty) operation, with scant extra risk, said

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Paul Sampson of Oakland, who had only one death in 30 cases. . . . C. R. Smith of Los Angeles has found 95 per cent of MINIMAL LESIONS to have positive bronchial secretions when repeated sputum and gastrics are possible. The laboratory is the best guide for evaluating the results of rest, drug, or collapse-surgical therapy. . . . Upper lobe as well as lower lobe, BRONCHIECTASIS may accompany and follow tuberculous lesions, and be shown by bronchograms, proved David Salkin of San Fernando. . . STREPTOMYCIN is still the standard of comparison, and is always paired with a PAS drug; sulfone drugs may have an occasional adjunct value; TB-1 is toxic, and has yet to prove itself; neomycin and terramycin are still experimental, said Corwin Hinshaw of San Francisco. . . . The inefficiencies, hazards, and late complications of PNEUMOTHORAX make it a procedure which is used less and less in the midwest; a Milwaukee sanatorium of 600 beds now has TWO cases taking pneumothorax, said John Steele, and of one series in which 67 cases were attempted, only 23 now have an ambulatory apparent arrest (of which about half may reach a successful re-expansion). . . . John Skavlem of Cincinnati almost agreed with the reduced indications. . . . Dr. Steele believes that the simple Warring PULMONARY FUNCTION TESTS are adequate for most cases, and bronchospirometry is only occasionally necessary. . . . Everyone agreed that the AMOUNT OF TUBERCULOSIS seen at operation and in resected lungs has been most impressive and discouraging, and speaks for greater care, larger operations, more intensive study by x-ray.

The relationship between RHEUMATIC FEVER and streptococcus infection seems to have been clarified a bit. . . . Dr. Charles Rammelkamp of Wyoming noted that antibodies develop about three weeks after a strep infection, and that about 3% of the cases have attacks of rheumatic fever at that same time. . . . He used penicillin to clear away the streptococci; antibodies were prevented from forming; and rheumatic fever rarely occurred.

The Elizabeth Blackwell Citations for 1950 have been awarded by the New York Infirmary to FIVE WOMEN DOCTORS for distinguished achievement in the teaching or practice of medicine. . . . Some of the Arizona women physicians have worked with those on the list, which includes Dr. Ruth Bakwin of N. Y. U., Dr. Leona Baumgartner of the U. S. Children's Bureau, Dr. Elsie L'Esperance of Cornell, Dr. Elaine Rolli of the N. Y. U.-Bellevue Medical Center, and Dr. Barbara Stimson of Poughkeepsie.

Five years ago it would have been hard to believe that a patient with edema could have a SALT DEFICIENCY, and yet profit by the use of saline. . . . Now it is not unusual to see a cardiac case, with hydrostatic causes for edema, in which urine tests show an absence of sodium following a salt-free diet. . . . The improvement when a gram of sodium chloride is given each day may be abrupt and notable.

A dignified mid-western University has made it a practice to award medals to its alumni when they reach the fiftieth anniversary of graduation. . . . Such an award was recently made to a physician in California, and duly noted in the press—after which several clippings were quickly sent by his local colleagues to their acquaintances in the mid-west. Plus insulting remarks and raucus laughter, since the medal recipient had been widely known to "interfere with pregnancy," etc., etc. . . . The comments seemed pretty one-sided until the reply arrived from a Chicago professor, which said "I am sorry that such a mistake should be made. Fifty years, however, is long enough for even a physician to become dishonest!"

HORMONE HINTS—Hormone therapy of the gout has reached back for the help of a previous remedy. . . . Wolfson, et al., of Chicago have found that ACTH will arrest GOUTY ARTHRITIS, but that a glycocorticoid deficiency which occurs on its withdrawal may allow a new attack to occur. Colchicine given with, or shortly after, the ACTH has prevented even minor recurrences.

The ACTH effect on ASTHMA, HAY FEVER, and LOEFFLER'S SYNDROME has been confirmed by Harris of Los Angeles. Clearance has usually been very rapid, but relapses may occur and side-effects of the drug can be embarrassing.

Dr. John R. Mote, medical director of Armour & Co. (and once of Arizona), tells of the use of ACTH in INFECTIONS. The differences in adrenal gland function may be a cause of differences in susceptibility to viruses and bacteria.

Along the same line a research project at St. Luke's Hospital in Chicago. The effect of CORTISONE is being studied on infections such as pneumonia, on infections of the liver, and on obscure liver lesions of uncertain etiology.

The SURGICAL TREATMENT OF ASTHMA has taken a few more early steps. Most of the few reports have included a small number of cases, an unsatisfactory selection of cases, or a high operative mortality. . . . Rienhoff and Gay's results were half good and half bad in 1942; Carr and Chandler reported a good small series in 1948; and now Brian Blades, professor of surgery at George Washington, tells of 26 cases with only one operative death, 3 deaths in the ensuing 18 months, and 19 very satisfactory results . . . The cases were not in very good health before surgery. Eighty per cent had severe emphysema, and 50 per cent had cor pulmonale. . . . The present operation includes destruction of the pulmonary plexus, division of all visible branches

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from the vagus to the hilum, stripping of the sheaths from the great vessels to the lung, and section of the pulmonary ligament. Three of the 26 were operated on bilaterally. The 26 were chosen from 200 cases of asthma.

Most physicians have experiences which are odd or bizarre, though usually unpublished. . . . Few ever have the peculiar setting which Joseph Halton, M. D., has had in Sarasota, Florida. Years ago he expanded his practice to include the PERSONNEL OF RINGLING BROTHERS CIRCUS—and then to some of the ANIMALS! . . . Giving paregoric to Gargantua, doing autopsies on giraffes and orangutans, opening an abscess on an elephant (with a sinus four feet long), x-raying a black panthers' chest, and similar chores are among his memoires (recently reported in the Medical Annals of Washington, D. C., and the Journal of the Florida Medical Association).

Hospitalization is a headache. . . . The scarcity of beds and the cost per day are the chief causes. Aging of the population, chronic illnesses, nostalgia, etcetera, are contributing causes. . . . The HOME CARE PLAN, named and used in New York City, is being tried elsewhere. It goes a step farther than Red Cross Nursing calls, etc. . . . The cost per day at the Montefiore Hospital in 1948 was $13.00 per bed; in their home care plan it was $2.50. The patient gets medical and nursing visits by the hospital staff, and the family gets instruction on care, diet, and any simple therapy. . . . The plan can not take the place of hospitalization in many cases, but it may fill a gap.

NOTES ON BCG VACCINATION — Dr. E. J. "Pat" O'Brien, famous chest surgeon from Detroit and president of the American Association for Thoracic Surgery, has recently taken a trip around the world to survey the tuberculosis problem. . . . One of his conclusions is that the disease has barely been touched in many places. Another, and more amazing one, is that surgery and other therapy are attacks at the wrong end of the problem, and he is going to give his presidential address on the need for a tremendous vaccination program—world-wide, but certainly in the U. S. where it can be had. . . . In reply to this paradoxical attitude, Dr. Robert Bloch of Chicago (a recent convert to vaccination) said, "Here we have a powerful evangelist for BCG, and he turns out to be a surgeon! I am moved to tears!"

A new reason for wide use of anti-tuberculosis vaccination is the very fact that infection is becoming more rare and more people are unprotected; the lessening "natural" infections must be replaced by an artificial one.

There are three sources of vaccine in the U. S.—the Research Foundation in Chicago (Dr. Sol Rosenthal), the Phipps Institute in Philadelphia (Dr. Aronson), and the New York State Laboratory at Albany (Dr. Konrad Birkhaug). . . . The manufacture of the vaccine has reached the point where the National Institute of Health is about to approve and license the Research Foundation laboratory—a step which means that it can be supplied for interstate commerce, rather than pure research. . . . They have a vaccine nearly ready which will keep for at least 6 months. . . . The laboratory precautions are so complete that a visitor must have a negative chest x-ray before being allowed in the lab. area. . . . Air-conditioning is separate and complete. The vaccine is made anaerobically, and routine testing has shown that no batch has been contaminated in the entire 13 years of operation.

Dr. Rosenthal reports that the Research Foundation now supplies 121 institutions in the U. S.; 19 medical schools; numerous places outside of the United States; all of the vaccine used by the USPHS in the Columbus, Georgia project, etc.

It is hard to estimate the value of a medical report. If people need it and want it, the news gets around in a hurry, and the data are quickly applied. . . . The value of a report on a medical subject in a non-medical magazine is equally obscure. If the effect depends on quality, it would seem that an article on "THE JAUNDICE PLAQUE" by Steven Spencer in the Saturday Evening Post of March 25th, should do a lot of good. . . . The story of infectious hepatitis is clear and exciting, and medicine should profit. . . The author has written another readable one on surgery for lung cancer in a recent issue.

A most amazing correlation of services is seen on the children's orthopedic service at the University of Chicago. . . . Eskimos from Alaska and Indians from Arizona are sent to Chicago for treatment of bone and joint infection. . . . The Navajo Indians, originally in the federal hospitals of the Indian Service, are sent with the help of the Episcopal Church Mission. The Eskimos, who are cared for by the federal Alaskan Native Service, are transferred by plane by the Red Cross. . . . At the U. of C. they are cared for by the orthopods, but seen in consultation by the chest service. . . . The incidence of tuberculosis among Eskimos is appalling. In some villages it nears 100%, among adults, and it is impossible to find foster homes for the returned children.

ARIZONA MEDICAL HISTORY — A Tucson physician was called to attend a childbirth in Brewery Gulch about 50 years ago. . . . What with the long trip to the Bisbee area and other delays, he arrived too late and the child too soon. The chief post-partum complication was the situation of the child, which had been precipitately born into a crockery pot. . . . The physician swears that the rebirth resembled the hatching of a chick—the pot had to be chipped away from the healthy infant.

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THE ARIZONA TUBERCULOSIS AND HEALTH ASSOCIATION

On Saturday, April 1, 1950, I attended the Annual Meeting of the Arizona Tuberculosis and Health Association held at Maricopa Inn, Mesa.

The Morning Session was presided over by Fred G. Holmes, M. D. Mrs. Christina Pruitt of Mesa, Vice President of the Maricopa Southside Tuberculosis and Health Association, delivered the address of welcome with response by E. D. Herreras of Tucson, 1st Vice President of the Association. Approximately seventy-five were in attendance, representing every County in the State, including representation and a delegation of Navajo Indians. This session was devoted primarily to the presentation of reports on the year's activities and accomplishments of its various county groups. Arizona has a tuberculosis death rate of more than three times the United States average and from the content of the reports submitted, the acute need for more adequate facilities with which to cope with the problem, both from the medical care and facilities and, rehabilitation and welfare aspects, is indicated. Helen E. Watkins, Executive Secretary of the Association, submitted its annual report. Failure of the Legislature to appropriate $500,000.00 for more beds at the State Tuberculosis Sanatorium and shortage in the collection of only $59,658.00—1949 Christmas Seal Sale with a goal of $75,000.00, were the two major disappointments. W. Warner Watkins, M. D., former President, now Treasurer, submitted the financial report for the fiscal year, April 1, 1949 to April 1, 1950, setting forth total receipts of $64,065.07, total disbursements of $37,841.73 with a balance of $6,309.65, after providing $3,000.00 as a gift to Greater Phoenix Association and appropriating $16,913.69 for use in the 1950-51 program. A budget for the fiscal year 1950-51 appropriating $30,800.00 for estimated disbursements was presented and approved.

The Luncheon Session was presided over by Paul Dawson of Yuma 2nd Vice President of the Association. L. K. Swasey, M. D., Phoenix Medical Chief, State T.B. Hospital, spoke on "What to do with a new case of Tuberculosis." Mrs. Olga Welch of Phoenix, Supervisor of Home Service, Maricopa County Red Cross, spoke on "Cost of care of the Family." R. I. Pierce, M. D., Washington, D. C., Division T.B. Control, United States Public Health Service, spoke on "Total cost to the Taxpayer." Using statistics, he pointed out that failure to detect and treat a "positive" active case involving an expenditure of approximately $5,000.00 over a two-year period might involve an expenditure of $45,000.00 through spread of the disease. Broda O. Barnes, M. D., of Kingman, spoke on "Occupational Therapy in early Tuberculosis."

The Afternoon Session was presided over by E. D. Herreras of Tucson, 1st Vice President of the Association and President of the Pima County chapter. Howell Randolph, M. D. of Phoenix, President-elect of the Arizona Chapter, American Trudeau Society, spoke on "Chemotherapy in Tuberculosis." Joseph J. Saia, M. D. of Ft. Defiance, Director T.B. Sanatorium, Navajo Medical Center, spoke on "Tuberculosis and Our Navajo Indians." He reported some alarming statistics on the prevalence of T.B. among the Navajos. Mrs. John H. Thomas, Tucson, Pima County chapter, reported on the success of "Providing a Visible Case Register for the County Health Department." Broda O. Barnes, M. D., Kingman, "Education and the Patch Test," suggesting the latter be undertaken among school children during the Christmas Seal Sale. Lloyd French, Mesa, Supt. Southside District Hospital, spoke on "Case Finding—X-ray for all Hospital Admission." Paul Dawson, Yuma, President Yuma chapter, spoke on "Patient Service Entertainment" and the success of their efforts last year. Mrs. Ben Orcutt, Phoenix, Director Regional V. A. Social Service, spoke on "Cooperation with Social Service of Veterans' Administration.

A Business Meeting of the Board of Directors followed, which I attended. E. D. Herreras of Tucson was elected President. A bequeath which may approximate $14,000.00 was reported with grateful appreciation.

The Dinner Meeting was held in a local school, George V. Christie of Phoenix, President of Greater Phoenix Tuberculosis and Health Association, presiding. Following dinner and a musical program, Miss Clarissa E. Boyd of New York City, Associate on Program Development of the National Tuberculosis Association, spoke on "Building a Program for Your Tuberculosis Association."

In conclusion, I was impressed of the need for more and more public education in the pro-

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Respectfully submitted,

ROBERT CARPENTER
Executive Secretary.

THE NATIONAL EDUCATIONAL CAMPAIGN

April 4, 1950

To: State Medical Societies

The 1950 endorsement drive of the National Education Campaign, reflecting the rapidly broadened front of public support for medicine's cause, continues to gain momentum!

As of March 15, a total of 4,181 National, State and local organizations had taken a stand in opposition to Compulsory Health Insurance and in favor of Voluntary Health Insurance. This marks a gain of 1,420 new resolutions in the 6-week period since January 31.

Enclosed is a supplemental tabulation by States, showing the numbers of organizations on record as of January 31 and March 15, 1950, and giving the increases between those two dates. It is significant to note that most of the sizeable gains have been chalked up in States which have undertaken the new program of field work with the assistance of representatives from the National Campaign Headquarters.

The 4,181 National, State and local groups, classified according to type of organization, line up as follows:

Medical and Allied	1033
Insurance	117
Farm	239
Veteran	385
Religious	56
Women's	1768
Civic Clubs	321
Other Groups	262

Let's maintain and accelerate the endorsement drive. Let's make every U. S. Senator and Representative aware that the people "back home" do not want compulsion in the field of health insurance and medical care.

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Arizona Blue Shield Blue Cross

Both Arizona Blue Cross and Arizona Blue Shield showed steady enrollment gains during the first quarter of 1950, it is announced by L. Donald Lau, Executive Director.

Blue Cross enrollment at the end of March was 112,667, a net gain of 2,835 for the three-month period. There were 40,374 Blue Cross contracts in force at the end of March, with an average of 2.79 participants per contract.

The net enrollment in Blue Shield at the end of March was 55,675, as compared with 53,198 at the end of 1949 — a gain of 2,467 for the quarter. Blue Shield had an average of 2.95 participants on 18,011 contracts.

Dr. Paul R. Hawley, Chief Executive Officer of the National Blue Cross and Blue Shield Commissions, resigned effective March 1 to become Director of the American College of Surgeons. He retained the presidency of Blue Cross' Health Service, Inc., organized last November to offer uniform benefits to employees of large industrial and business groups operating in the areas of several of the ninety Blue Cross Plans. In his new position Dr. Hawley succeeded Dr. Malcolm T. MacEachern, who, as Director Emeritus, will devote a major part of his time to supervision of the College's hospital standardization program.

Here's a quote from British Health Minister Bevan, as reported in the Chicago Daily News: Speaking to a college audience, Bevan said: "Now that we have got the national health service based on free prescriptions, I shudder to think of the ceaseless cascade of medicine which is pouring down British throats at the present time. I wish I could believe that its efficacy was equal to the credulity with which it is being swallowed."

Insurance Economics Surveys reports that more than a third of the nation's population is now covered by some voluntary plan for the prepayment of hospital care, and it concludes that if this can be done at a time when the plans are still relatively new, the government has a weak case in arguing that compulsion is the only answer. Incidentally, the ninety Blue Cross Plans, with a total enrollment of more than 35,000,000 now cover more than a fifth of the country's population.

The Hospital Service Association of Toledo, Ohio, reports that insurance statisticians compiled the following information after a study of 10,000 workers: Seven payments for accidental death and dismemberment occur; 77 for life insurance; 1,700 for accidents and sickness; and 2,500 for hospital service benefits for the worker and his family. This is evidence, the Association says, that Blue Cross is offering precisely the service most needed by the worker.

The Blue Cross Commission reports that more than 327 million dollars were paid to hospitals by the voluntary, non-profit Blue Cross Plans for the care of 4,512,329 members during 1949. Last year's payments exceeded the 1948 totals by almost $57,000,000, and represented the largest percentage of income that has been paid during any previous 12-month period.

Total income for all Blue Cross Plans in 1949 was $338,193,814 and the payments to hospitals represented 84.6 per cent of that amount, the Commission reported.

"Blue Cross is the best buy available for hospital service benefits," it was reported by Harry Becker, director of the social security department of the International UAW-CKO after a study of seventeen insurance plans in which the level of benefits most nearly approached full payment of hospital costs. "This decision was made on a dollar-and-cents basis and not on the

basis of any ideological considerations or any social considerations," Becker said.

A recent report of the United States Bureau of Labor Statistics shows that bills for medical and hospital care were 30 per cent lower in 1948 than the general consumer price index. While other things increased 171.2 per cent over the 1935-39 price index, doctor and hospital bills increased only 141 per cent.

Blue Shield now covers more than 14,000,000 persons, it is reported by the Blue Shield Commission. This represents a national growth of 5,300,000 since the end of 1948. Nation-wide, more than $100,000,000 in benefits were received by Blue Shield subscribers last year.

Book Reviews

PRIMER OF ALLERGY. By Warren T. Vaughn, M.S., M.D., Richmond, Va. With illustrations by John P. Tillery; Third edition revised by J. Harvey Black, M. D., Dallas, Texas. Pp. 167 with index. Price $3.50. The C. V. Mosby Company, St. Louis, 1950.

Here is a book that is more than its title would indicate. It is more than a primer for it is a fairly comprehensive presentation of the essential concepts of our present day knowledge of allergy, and in language that the patient can understand! For the specialist there may be nothing new here, but I suspect that even the seasoned allergist may glean numerous suggestions for instructing and managing his patients. The physician who treats only a few allergic patients or none, as well as the patient, will probably add to their education by reading this book. This education will be sugar-coated, as the style of writing is delightful and easy to read. The cartoon illustrations are pointed and amusing. The author in his preface "hopes (it) will be adjudged a reasonably good bedtime story," and it is.

On the title page the book is described as "a guidebook for those who must find their way through the mazes of this strange and tantalizing state." Therein lies the suggestion for its greatest usefulness. If I were an allergist I think I would supply this book or prescribe it for every patient at his first visit. I think it would save hours of explanation for the multitude of symptoms which plague the allergic patient, and I think the patient would be much more cooperative and responsive to treatment for having read it.

You may rightfully conclude that I enjoyed reading this book. I think most physicians with any interest in allergy would do likewise.



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WOMAN'S AUXILIARY

PIMA COUNTY MEDICAL AUXILIARY NEWS

The officers of Pima County Medical Auxiliary decided to dispense with the regular April meeting and have a "Get Acquainted" Bridge and Canasta Party—which they did at The Lodge-on-the-Desert, April 11th.

A very short business meeting was held under the trees in the beautiful patio.

Dr. Francis J. Bean, Superintendent of Pima County Hospital, told of the need of a Woman's Auxiliary to the Pima County Hospital. He stressed the fact that personal services were needed rather than financial aid; and explained the change in public relations when lay-people were allowed to be on the "inside" of the running of a hospital. (No action was taken by the Auxiliary.)

Mrs. Darwin Neubauer, Chairman of the Philanthropic committee, announced that cribs, mattresses, chests, etc., had been purchased for the Arizona Children's Home and various needed items for the Square and Compass Crippled Children's Clinic.

Delightful refreshments were served, after which Bridge and Canasta were in order.

Hostesses for the afternoon were: Mrs. Donald Schell, Chairman; Mmes. J. H. Woodard, R. A. Wilson, W. P. Steen, A. Harry Neffson, L. Lindberg, H. E. Kosanke, H. G. Atha, C. H. Kuhlman, J. A. Omer, W. G. Shultz and C. N. Sarlin.

HEALTH DAY IN MIAMI-GLOBE

Hats off to Gila County Medical Auxiliary! On April 7, at the Cobre Valley Country Club, the twelve members of this auxiliary, spearheaded by their capable president, Mrs. Cyril Cron, sponsored a Health Day Program.

The Country Club was beautifully decorated with mountain laurel, purple iris, and Easter lilies. At 2 P. M. Dr. A. James Fillmore of Mesa addressed a large group of women from the Miami-Globe area. Following his talk Mrs. Cron brought forth a huge container decorated in an Easter motif. This was well filled with hundreds of tickets for a prize of a wing chair. The number of tickets sold by the members of this auxiliary during the past six weeks attests to their resourcefulness and energetic activity. The money they collected will be used for furnishings in their new Gila County Hospital.

Refreshments were served this large group of women and a very pleasant social afternoon was had by all. A group of auxiliary members from Phoenix and Tucson motored up for the program, and were inspired by the work of this small but active auxiliary.

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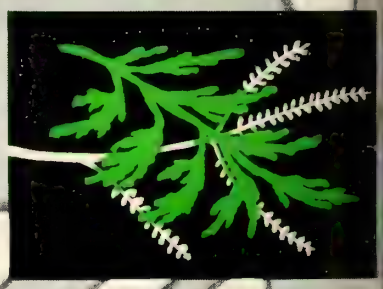
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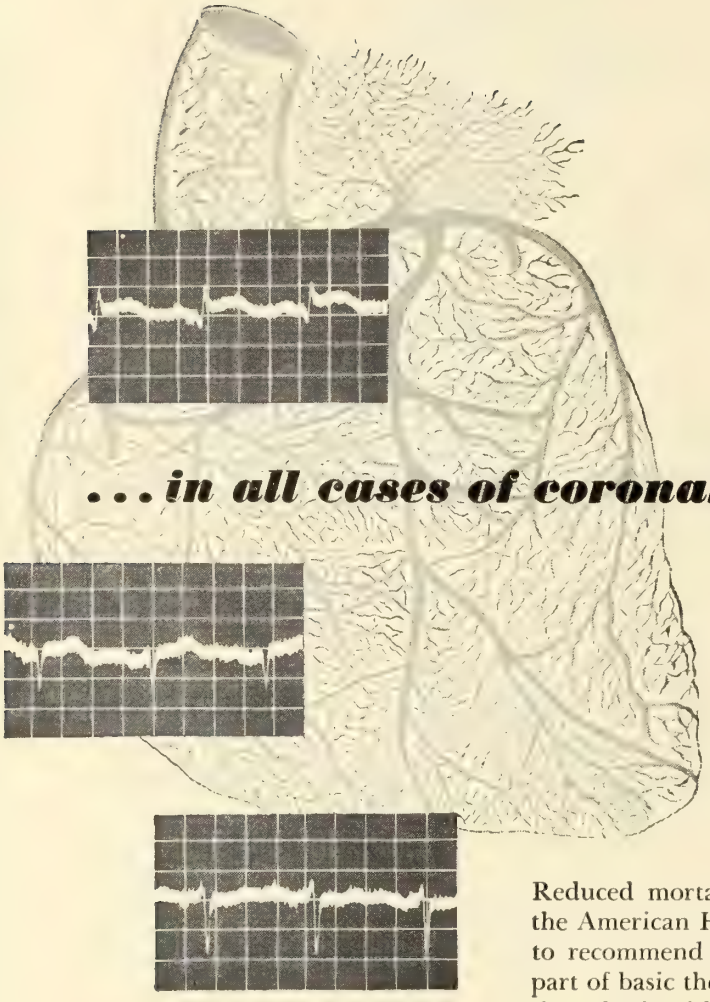
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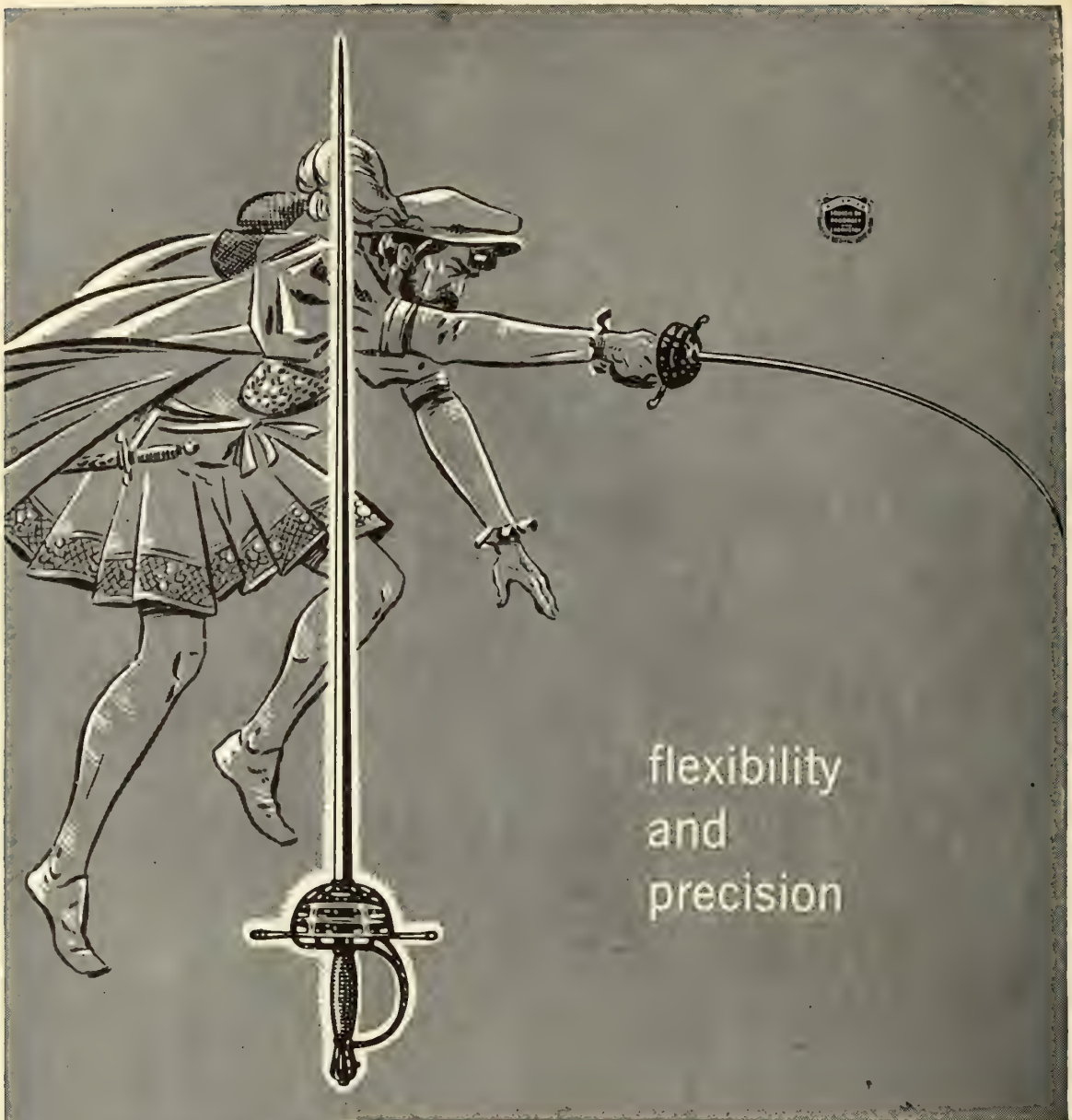
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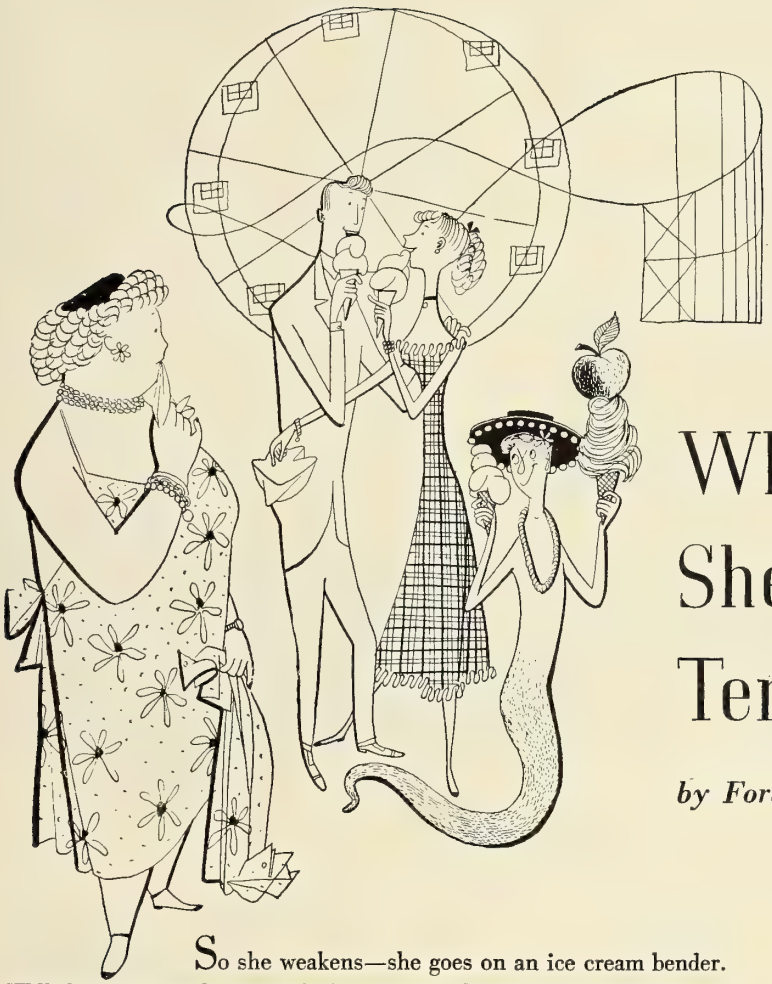
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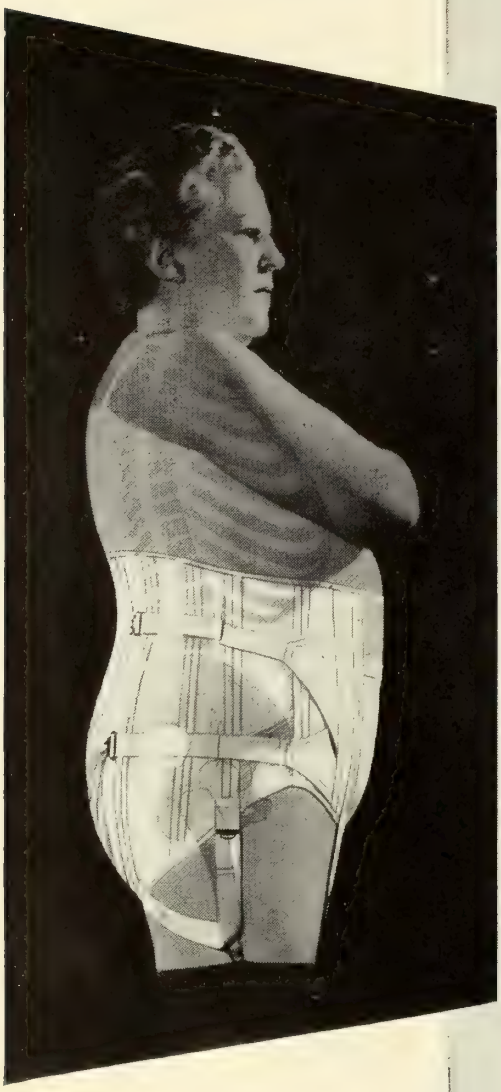
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CHOLECYSTITIS

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Indianapolis, Indiana

CHOLECYSTITIS, in my opinion, is nearly always due to chemical action, sometimes by activated pancreatic juice, but more often by strong solutions of bile salts. In this paper the evidence supporting this belief and that against the prevalent one that infection is the chief or only cause, along with the application of these conceptions to practice, are considered.

The Relation of Infection to Cholecystitis

1. In about two-thirds of all cases of cholecystitis the bile is sterile. An immense number of experiments has failed to show that infection causes cholecystitis. These experiments have been inconclusive and contradictory.

2. Abdominal wounds made in the treatment of acute cholecystitis hardly ever become infected.

3. Acute cholecystitis is very rare in childhood, although infection is then more common than in adult life.

4. The microscopic appearance of the acutely inflamed gallbladder could not be produced by infection.

Injuries to the Gallbladder by Chemical Agents

Clairmont and Von Haberer in 1911 reported on what they called nonperforative biliary peritonitis. At autopsy on patients dead of this disease a great quantity of bile containing pancreatic enzyme is found in the peritoneal cavity. The walls of the bile ducts and of the gallbladder are of tissue paper thinness, but are nowhere perforated. A number of experimenters have produced this disease by the injection of pancreatic juice into the bile passages. Only one proven case of it has come to my attention. In a previous paper the following statements were made about it. There is positive proof that pancreatic juice can cause acute cholecystitis in man, but proof is lacking that it is the common, or even a frequent cause. The demonstration of the presence of amylase in high titer or of lipase in the contents of the gallbladder or in the peritoneal fluid is the only conclusive proof that a given case of cholecystitis is due to the action of pancreatic juice. We have been unable to find a report of any series of cases in which tests for these ferments have been made, except one by Popper.

Popper examined for amylase 219 specimens of bile obtained at operation. Nineteen of these were from patients having pancreatitis or peritonitis due to bile. These contained amylase. He found amylase in high titer in 10 per cent of the remaining 200 specimens, but could find no reason to think that the gallbladders from which amylase had been obtained had been injured by pancreatic juice. Thus the evidence at present available indicates that pancreatic juice is not a common cause of cholecystitis.

Mann in 1921 produced gangrene of the gallbladder by the intravenous injection of Dakin's solution. He showed that the blood carries this to the gallbladder.

Aronsohn and Andrews in 1938 reported the experimental production of cholecystitis by the introduction into the gallbladder of concentrated solutions of bile salts. These are the only escharotic constituents of the bile. That they can cause cholecystitis in man has not been proved, but the results of the following experiments and other evidence make one believe that they are its usual cause.

These experiments were perfomed four years ago by me with the assistance of Drs. K. G. Wakim and J. S. Battersby.

1. The experiment reported by others of injecting a 5 per cent solution of bile salts into

Read before the Fifty Eighth Annual Meeting. Arizona Medical Association, Tucson, Arizona May 9, 1949.

the gallbladder through a catheter passed into it by way of the cystic duct was reported. This method of introduction was used to avoid any mechanical injury to the gallbladder wall. The gallbladder immediately after the injection became edematous. Numerous spots of remorrhage then appeared. These rapidly coalesced till they covered the entire gallbladder, which was then dark red in color. Sections of it showed edema, tissue damage and interstitial hemorrhage. In no one of four experiments did we observe edema or other sign of injury to the common bile duct.

Aronsohn and Andrews attempted to produce cholecystitis by injecting solutions of bile salts into systemic veins. In half of their experiments they observed some damage to the gallbladder, but, because of the great toxicity of bile salts so given, their experiments were not conclusive. The idea occurred to me that this toxic action could be avoided by injecting the bile salts into a radicle of the portal vein. The experiment was done as follows: A laparotomy was performed with exposure of the gallbladder. An injection of 1 0t o15 c.c. of a 5 per cent solution of bile salts was made into an omental vein. We observed after this injection effects on the gallbladder identical with those observed after injection of bile salts directly into its lumen.

Four dogs were allowed to recover. They showed no ill effects. Their gallbladders, examined microscopically a week after the experiment, were almost entirely normal. The extravasated blood was gone, no necrosis was present. Some edema and a few fibro-blasts were the sole remaining results of injury. No injury to the liver or bile ducts was evident.

Bile salts reaching the liver by way of the portal vei nare evidently so rapidly secreted that little or none of them reach the systemic circulation. It was easily proved that they reached the gallbladder in the bile. It seems certain that their concentration in the gallbladder is increased to the dangerous level by absorption of water from the bile by the gallbladder wall.

Activated pancreatic juice causes necrosis of the bile ducts and gallbladder. Concentrated solutions of bile salts damage the gallbladder but not the ducts.

Clinical Applications

The foregoing facts show, I believe, that infection can not be the cause of most cases of cholecystitis. By this it is not meant that infection of the gallbladder does not sometimes occur. It does occur, but only as a late event and in a gallbladder wall damaged by chemical action. Exactly as the chemical peritonitis due to perforation of an ulcer may change in 8 to 12 hours to a bacterial peritonitis, so can a chemical inflammation of the gallbladder change to a bacterial inflammation. Clinical experience shows, however, that this is a rather rare occurrence. That pancreatic juice can produce necrosis of the gallbladder in man has been proved. That bile salts can produce similar results in man seems practically certain. That the extraordinary ability of the gallbladder to absorb water from the bile exposes it, under certain conditions to the escharotic action of concentrated bile salts seems probable. Note that in those experiments in which bile salts were injected into the portal venous system no change in the liver was observed, though intense inflammation of the gallbladder was seen. This probably indicates that the bile salts reach the liver in a concentration too low to damage it and pass into the bile in this concentration and that water is absorbed from this bile by the gallbladder till the concentration of bile salts becomes great enough to enable them to damage the gallbladder wall.

Sometimes acute inflammation or great thickening of human gallbladders which contain no stones is seen. Human cholecystitis, however, nearly always occurs in gallbladders which contain stones. Cole has shown that partial obstruction of the cystic duct is a chief factor in the production of cholecystitis. This explains the relation of gall stones to the disease. No one can reasonably doubt that repeated chemical inflammation of the gallbladder can thicken its wall.

Care must be exercised about applying the results of experiments on animals to the treatment of disease in man. Since, however, experimentally produced cholecystitis and cholecystitis in man are identical in every particular, it seems certain that they have the same cause and run the same course. Valid conclusions from these experiments can be reached on the treatment of cholecystitis in man, and clinical experience has verified these conclusions. The following instances show this:

Evaluatio no fa normal cholecystogram obtained after one or more attacks of cholecystitis

1. Many patients give a history of repeated and typical attacks of gallbladder colic, but have normal cholecystograms. After eliminating as well as possible all causes of trouble except cholecystitis I have operated upon a considerable number of these patients. In nearly every case abnormalities were found—gallstones, pericholecytic adhesions, thickening of the gallbladder wall—sufficient to account for the patient's symptoms. It is assumed that these patients have had repeated attacks of chemical cholecystitis, each followed by prompt and almost, but not quite, complete recovery.

From this experience it is concluded that a report of normal findings by x-ray examination of the gallbladder does not forbid its examination by laparotomy, provided, that,

a The patient gives a history of several entirely typical attacks of gallbladder colic, or of troublesome reflex indigestion, and,

b All other probable causes of the symptoms can be excluded.

The Significance of Bacteria in the Gallbladder

The liver has been called the cesspool of the body. One of its chief functions is the removal from the blood stream of bacteria and other particulate matter by the phgocytic action of its Kupfer cells. Sterile bits of liver can hardly ever be obtained from adult humans. It is no wonder, therefore, that bacteria are found in the bile, gallbladder wall or lymph glands along the cystic duct in a certain number of cases. Abundant evidence which we have already given shows that these bacteria are comparatively harmless. The gallbladder should no longer be regarded as a focus of infection. The bacteria present within its lumen or wall are ordinarily of no more significance than bacteria present in the mouth. They can, however, infect a gallbladder severely damaged by chemical action.

The fear of infection by the surgeon is a chief hazard of operations on the gallbladder and bile ducts. The relation of the cystic duct to the hepatic duct is extremely variable. It may even pass behind the hepatic duct. The relations of these ducts when they are surrounded by thick and edematous scar tissue are difficult to determine even at autopsy. The surgeon who attempts to remove the gallbladder when these conditions exist without opening it and exploring the cystic duct from within may injure the hepatic duct or encounter dangerous hemorrhage. These troubles can easily be avoided, by opening the gallbladder, removing its contents, splitting it from top to bottom, probing the cystic duct, and using the gallbladder as a handle to obtain good exposure of the deep ducts. In some cases it can be safely and readily removed by cutting it across at the ampulla and dissecting this and the cystic duct from above downwards. By this means a clear view of the cystic artery and ducts can be obtained. This operation is as safe as cholecystectomy from above downwards and much less bloody and tedious.

Early or late operation for acute cholecystitis

Acute cholecystitis does not often require immediate operation. This belief is founded,

1. On clinical experience.
2. On the demonstration that infection is a late and only occasional event in cholecystitis.
3. On the demonstration that cholecystitis is caused by chemical action.
4. On the demonstration that the gallbladder can in most cases rapidly and almost completely recover from the effects of chemical action.

It seems safe in all cases to observe the course of the illness for a few hours. Early operation should me done if this course becomes steadily worse.

It is entirely safe in nearly all cases to open the gallbladder, remove its contents split it from top to botto mand then enucleate its mucous membrane. The edema of the gallbladder wall usually makes this surprisingly easy. It is not wise in the presence of acute inflammation to attempt isolation of the cystic duct. Under these conditions, this had best be tied at its origin with a ligature passed around it on a needle.

To attempt a definitive operation with exploration of the bile ducts in the presence of gangrene of the gallbladder is foolish. This, in the few cases in which it will be necessary, can be safely done at a second operation. If at the first operation omentum is interposed between the under surface of the liver and the contiguous viscera, exposure of the common duct can be easily and safely accomplished.

Finally, any operation on the gallbladder or bile ducts should be done through an incision which does not cut the aponeurosis of the Transversus abdominis muscle at a right angle to the course of its fibers.

NEWER METHODS OF TREATING TUBERCULOSIS

H. CORWIN HINSHAW, M. D.*
San Francisco

TREATMENT of active tuberculosis may at first seem to be of less concern to the physician in general practice than is the diagnosis of tuberculosis. But he is interested in the problems of therapy, his advice is frequently sought, and he may be required to supply interim care to patients unable to obtain immediate sanatorium treatment. Furthermore, his is the task of prolonged aftercare during convalescence, and he sees the patient during the many years following treatment, ever alert to possible recurrence.

All of us wish that tuberculosis, even in its active phases, could be treated without the many months of invalidism, with all that it costs financially and emotionally. None of us will be satisfied until a satisfactory ambulatory treatment has been devised; but this has not been achieved and there are serious obstacles in the path of such progress.

Superficially it might seem that more effective treatments now known should decrease the need for facilities in sanatoriums and tuberculosis hospitals Actually the effect seems to be in an opposite direction! Every one of us with a large tuberculosis service has patients occupying beds for months or years after they would have been dead but for new drugs and new operations. Every thoracic surgeon operates on scores of patients who could never have been brought to surgery before the day of streptomycin. Every sanatorium administrator is harassed by the rising costs of care and increasing demands for care now that his institution has more to offer. The sanatorium, once an institution for domiciliary care and fresh air treatment, has now become a marvelously complex medical and surgical hospital with a huge staff embracing all the specialties.

Progress has been made in the field of collapse therapy. Pneumothorax has long been the standard collapse therapy procedure whenever it could be accomplished. We formerly thought of it as a safe and effective treatment which could be abandoned without serious consequences when its purpose had been served. Recently many of us have come to realize that pneumoperitoneum offers some real advantages over pneumothorax under some conditions: when less selective collapse is required, when the disease is too acute or too extensive for pneumothorax treatment or when conservation of pulmonary function is of great importance. Prolonged pneumothorax treatment very frequently produces a greatly handicapped lung by reason of the inelastic pleural envelope which develops and which restricts pulmonary expansion. This rigidity may be an advantage by enforcing permanent rest upon the diseased lung; but it may also reduce pulmonary function so greatly as to lead to serious consequences, especially if the opposite lung becomes involved later. The immediate and remote pleural complications of pneumothorax are viewed with greater concern now than formerly. And the therapeutic efficacy of pneumoperitoneum is rated much higher today than it was even a few years ago.

The actual removal of diseased pulmonary segments and lobes is now the treatment of choice in some circumstances when such radical procedures would never have been considered a few years ago. This development is an outgrowth of several factors: (1) the improvement in surgical techniques; (2) the training of many skilled thoracic surgeons, especially during and since the recent war; (3) the use of penicillin for preventing pyogenic infectious complications of surgery; and (4) the use of the streptomycin drugs in preventing tuberculous complications following operation. Whenever all or most of the active tuberculous focus can be amputated surgically, without excessive risk, resection must be considered, unless a simpler procedure is likely to suffice.

I want to mention here as well as elsewhere that the premature or injudicious use of streptomycin drugs, carried to the point of producing resistant bacilli, may thwart radical surgical treatment. Too many patients arrive in sanatoriums these days with resistant bacilli, produced by early treatment which should have been delayed to coincide with surgery.

Perhaps the greatest progress has been in the field of antibacterial therapy. There are three groups of drugs now available commercially and

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recognized as having a retarding effect upon the growth of the tubercle bacillus in the human body. These are (1) the sulfone drugs (promizole, promin, diasone) (2) the streptomycin drugs (streptomycin and dihydrostreptomycin) and finally (3) para-aminosalicylic acid.

In addition, a fourth group is now under extensive clinical trial in this country and in Europe, the thiosemicarbasone drugs, exemplified by "Tibione," (called Tbl-698 in the literature). This latter drug has been used most extensively on several thousand cases in Germany during the past two years and its present status is summarized conveniently in the current issue (January, 1950) of THE AMERICAN REVIEW OF TUBERCULOSIS in a series of articles.

There is confusion, with so many available drugs and more to come, and we do not know which drug or combination of drugs is preferable nor is there complete unanimity on questions of dosage and duration of treatment. But some general principles seem to apply to them all. Some of these general principles can be enumerated as follows:

1. None of the drugs will make new lung tissue grow where lung tissue has been destroyed. And tuberculosis is a destructive disease, especially in the lung. The void created by destroyed pulmonary tissue very frequently presents a mechanical handicap to healing which can only be overcome by collapse or surgical excision of the focus of infection. I believe that we are learning, slowly but steadily, how better to combine drug therapy with collapse therapy and with surgical excision. These are, of course, combined with bed rest, optimum nutrition and other advantages of institutional care.

2. Those forms of pulmonary tuberculosis most responsive to antibacterial drug therapy are the early but extensive and acute potentially progressive forms of the disease. Tuberculous pneumonia, for example, if treated early and adequately with a powerful drug like dihydrostreptomycin may be resolved before destructive changes have ensued. We often speak of reversible pulmonary tuberculosis as "exudative" tuberculosis where the predominant process is an infiltration with inflammatory cells, but before necrosis (caseation) has destroyed the fundamental architecture of the lung.

3. Antituberculosis drugs seem to be most effective in treatment of the superficial ulcerating mucosal lesions which occur along the sputum pathway. Some of these are exceedingly important: (a) Ulcerating tracheobronchial tuberculosis, a serious complication of pulmonary tuberculosis, has been studied only in recent years, since bronchoscopy has become recognized as an important diagnostic procedure in pulmonary tuberculosis. Such ulcers often heal very rapidly when antibacterial drugs are administered before fibrous bronchial structures have formed. (2) Tuberculous laryngitis, one of the most dreaded and painful complications of severe pulmonary tuberculosis, frequently responds dramatically to drug therapy. In the early days of the streptomycin studies, we all noted this remarkable phenomenon and I believe that this had much to do with the prompt acceptance of streptomycin as an effective agent. When Dr. McDermott and I recently surveyed the results obtained by German investigators with Tibione (Tbl-698) we were so impressed with the frequent, almost uniformly excellent results reported by the Germans when Tibione was used for treatment of tuberculous laryngitis. Within a few days the pain subsided, narcotics could be abandoned, patients could swallow freely, temperature declined and the road to recovery began to appear in view. (c) Tuberculous enteritis with all its misery, cramping, diarrhea, and wasting is frequently relieved by antibacterial drugs. This has been observed for streptomycin, for P. A. S. especially, and again the German physicians we visited recently seemed most enthusiastic about the prompt relief and prolonged benefit obtained when Tibione was used in treatment of tuberculous enteritis.

4. Miliary tuberculosis, acute hematogenous generalized miliary tuberculosis, formerly so frequently fatal, especially in children, is apparently curable in a substantial majority of cases. The more powerful drugs are required, namely the streptomycin drugs, preferably in combination with one or more auxiliary antibacterial drugs. Here the sulfone drugs, especially promizole, have developed a good reputation as a companion drug to dihydrostreptomycin.

5. Tuberculous meningitis, the most dreaded and most uniformly fatal of tuberculous infections, remains a formidable disease. A majority, perhaps 80 per cent, die but this is far better than the former figure of 99+ per cent. Here

we must use all we can muster in the way of therapy. Recently I have favored not only maximal tolerated doses of dihydrostreptomycin (intramuscular and intrathecal) and maximal doses of P. A. S., but have added for good measure Tibione or a sulfone. We cannot prove as yet that three drugs are better than two, but with such a grave disease as this to combat, it seems justifiable to push drug therapy to the limit. Certainly there is no other approach to tuberculous meningitis therapy and we fervently hope that better drugs will come or that we can better learn to use the several drugs we have. I know of no more satisfying experience that can come in the life of a physician than to see a healthy normal youngster who was once afflicted with this dread disease and who apparently is now cured.

6. Other forms of extrapulmonary tuberculosis deserve less emphasis when discussing antibacterial drug therapy. It is sufficient to say that surgical types of renal and orthopedic tuberculosis remain surgical, but surgery is often safer and more effective when carried out under the protection of a drug such as dihydrostreptomycin. Draining tuberculous sinuses are usually prevented or, if present, may be healed to pave the way for safer operative intervention.

The streptomycin drugs deserve special mention because they are the most powerful antibacteria agents known in tuberculosis. Of the two, most of us have come to prefer dihydrostreptomycin over the older form (streptomycin) on the basis of lower toxicity with wider safety margin, especially lower neurotoxicity for the vestibular branch of the eighth cranial nerve. As to efficacy, I believe that it is not possible to detect any significant difference experimentally or clinically between streptomycin and dihydrostreptomycin although there are opinions to the contrary.

The great disadvantage of the streptomycin drugs lies in the fact that after a few months of treatment, bacilli frequently appear which are utterly resistant to the therapeutic action of the drugs. When all or most of the bacilli are resistant, further treatment with the drug is useless, and this accounts for many failures. Therefore we like to reserve streptomycin for those lesions which are likely to become stabilized within a few months, during which time all therapeutic forces will be brought to bear *simultaneously* upon the disease process. Often we choose to defer treatment with streptomycin drugs to reserve such therapy for some possible crisis later, such as in support of a drastic surgical procedure. In the meantime, other therapeutic procedures may prove to be sufficient.

One of the very real advances of the past year or two has been the discovery that, in human tuberculosis, two or more drugs may be used simultaneously with apparent additive therapeutic effect; what may be even more important, this combination delays the rate of development of resistance to the powerful streptomycin drugs and prolongs their action for months. We begin to wonder if streptomycin or dihydrostreptomycin should ever be used without a supplementary agent. The best tested supplementary drug is P. A. S. (para-aminosalicylic acid), but P. A. S. is a rather difficult drug to use at times, and we hope that one of the others, a sulfone or perhaps Tibione, may accomplish a similar purpose. Studies are not yet completed to determine if this may be the case.

The development of ever increasing numbers of so-called "miracle drugs" sometimes puts the physician in a defensive position. The patient learns about some new substance over the radio, in the newspaper or in a magazine. He may not read it well and remembers only that it is a new "cure." Perhaps he learns about it before the physician does, and asks embarrassing questions which the doctor cannot answer directly. This has happened to me and it may have happened to you.

The best stock answer I can devise is to tell him that it is not fair to pass judgment on a new treatment on the basis of any popular report. We, as physicians, must withhold our opinions until the scientific evidence has been displayed, until the actual data have been published in medical journals. Until something better of proven worth comes along, we shall treat our patients with the best we possess.

There is no good and easy treatment for tuberculosis. All methods are difficult, expensive, slow, and disheartening. The advent of new drugs, new methods of collapse, and new operations has complicated the treatment problem and has *not* simplified treatment. There are new ways of helping patients and there are new ways of harming patients. None of the old methods have been discarded but are used with

the newer methods, and we all find it the more difficult to decide which methods to use, when to use them and when to defer their use to a more strategic time. And we all make mistakes.

All forms of treatment are radical in tuberculosis. Bed rest for a year is surely radical, but it may save a life. The decision to treat tuberculosis, or to delay treatment, imposes a grave responsibility upon the physician, whether that treatment be bed rest, collapse therapy, surgical excision, or treatment with an antituberculosis drug.

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California.

A PSYCHOLOGICAL APPROACH TO THE NAUSEA AND VOMITING OF PREGNANCY

A Preliminary Report

LLOYD F. SMITH, M. D.
Monrovia, California

NAUSEA and vomiting occur so commonly in pregnancy that some medical authorities believe their presence is normal. This symptom complex varies from a mild nuisance to a grave complication, lasts for a few days up to nine months, may be present in one and absent in the next pregnancy, is not uncommon when the foetus is wholly imaginary.

In most pregnancies no definite physical cause has been demonstrated for this common syndrome. This paper specifically excludes nausea and vomiting *during* pregnancy due to mechanical factors (as pyloric stenosis), inflammatory diseases (as appendicitis), tumors (as gastric carcinoma)and so on. These seldom occur, but when present can usually be diagnosed. We are concerned only with the symptom complex of nausea and vomiting attributed to the pregnancy itself.

The truth of the psychoanalytic explanation of nausea and vomiting of pregnancy is assumed. Those who wish further evidence are referred to the many authorities in this field. A good argument would seem to be the results obtained when the psychoanalytic concepts are applied routinely in everyday practise. The following methods have been used for over five years with results that appear consistently good. The growing number of obstetricians who are convinced that the symptom complex is psychological in origin may find suggestions here.

About ten years ago the psychoanalytic explanation of nausea and vomiting of pregnancy first came to my attention. After deciding that it has advantages over the usual explanations encountered up to that time, it happened that the examiner in the National Boards quiz on obstetrics asked as his first question the cause and treatment of nausea and vomiting in pregnancy. The next half hour heard much about the cause, but nothing about treatment. This paper attempts to answer the second half of that examination question.

The ideas on how to bring this theory down to the treatment of patients came quite casually, by serendipity. More than five years ago a woman early in her third pregnancy remarked that it was odd that the medical profession knew nothing about the nausea and vomiting of pregnancy. In her previous pregnancies she stated that she had vomited practically the whole nine months. Multitudinous remedies had been tried, uniformly without resulting in cure or even improvement. With delivery she made a quick recovery each time and the puerperium was without incident. The only important problem in her pregnancies had been the one symptom of vomiting.

She was told that nausea and vomiting had been found in pregnant women from the earliest medical records, that the symptom complex seemed on the increase of recent years, that it was probably more marked "the higher the level of civilization", that many doctors believed that the syndrome was definitely emotional in origin, but that we simply did not know how to apply our information routinely. Psychiatric specialists had been able to help limited numbers of patients, but most doctors still depended on various hypodermic injections, sedation, reassurance and most of all—time.

This patient had a college founded interest

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in psychology and insisted on further details. The general psychoanalytic outline was presented and discussed at some length. A week later she was seen again and further inquiries and objections to the theory presented. Meanwhile the nausea and vomiting had diminished. By the following week both had stopped and did not recur. This seemed like mere coincidence, but rather remarkable in view of her history. With a good deal of misgiving, selected patients were cautiously exposed to the same ideas. Within a year enough patients had been tried on this plan to give promise of success. Since that time the only treatment used for the nausea and vomiting of pregnancy has been the following.

The treatment outlined here has two methods, one or other of which has been adequate to treat all cases of nausea and vomiting met with during the past five years. Suggestions will be made of further approaches which should be tried, but unfortunately no cases that were not stopped by the above method have come up in our limited obstetrical practise.

METHOD 1.

In conversation with the patient, lasting about half an hour, the psychoanalytic principles of nausea and vomiting in pregnancy are reviewed. The following is the routine method of presentation.

"Nausea and vomiting of pregnancy are no longer complete mysteries, nor are they necessary evils accompanying pregnancy. Today we believe that nausea and vomiting have nothing to do with the physical fact of being pregnant. They are caused by emotional reactions. To understand how emotions can make any one nauseated and vomit, it will help to state a few facts about the human mind.

"We say that every one has two minds. This is a somewhat arbitrary division, but no modern psychiatrist will deny that there is a conscious and a subconscious mind. How is the conscious mind known? The conscious mind is the mind which directs conversation, the exchange of ideas, memory of past events. The conscious mind is aware of the sensations of heat, cold, pain and most important is the mind by which personal identity is recognized. In order to say "I am nauseated and vomit", the conscious mind must act.

"How is the subconscious mind proven? Most easily from dreams. During sleep the conscious mind is at rest. Yet some part of the mind is active, at times producing images called dreams. Dreams can make the individual toss in bed, moan or cry out. This mind which is active during sleep is the subconscious mind. The foolish prejudices, unreasoned likes and dislikes, desires to think, say and do things which the conscious mind says are childish, silly, at variance with the moral sense, are all activities attributed to the subconscious mind. There are five characteristics of the subconscious mind that need emphasis. First it is well to repeat that the subconscious mind is subconscious, mysterious, hidden, until recently unexplored. Next it is infantile, childish in its behavior, largely formed in the first five years of life. Thirdly it is not rational, its actions cannot always be justified before the reasoning power of the conscious mind. Again it is not moral, not true to the ethical code according to which the adult tries to live. Lastly the subconscious mind dominates the emotional life to the extent that love, hate, fear, guilt are usually beyond direct, conscious analysis as well as outside conscious control. Therefore if nausea and vomiting are due to emotional factors, it follows that the cause of these symptoms is basically subconscious, infantile, non-rational, non-moral, not controlled by reason.

"How does the subconscious mind react to pregnancy? What does a child think of pregnancy? Recently a child of five noted his mother's enlarging, pregnant abdomen for the first time. He called a younger child to see it, crying, 'Look. Mommy ate too much. Her tummy is big.' To him enlargement of the abdomen is always associated with eating a big meal, because it is the only cause that lies within his individual experience. This is a perfectly natural, normal, childish belief. Early in life all children learn that babies also make a mother's abdomen enlarge. Hence eating food and pregnancy are soon associated and *identified* in the childish mind. This is infantile, non-rational, non-moral thinking, but so is the subconscious mind throughout life.

"If the emotional reaction to pregnancy is dominated by the subconscious mind, how is nausea and vomiting explained? Vomiting is simply the opposite of eating and drinking, returning to the outside something that has passed through the mouth into the stomach. Since the childish mind associates and *identifies* preg-

nancy and eating, and since food can be gotten rid of by vomiting, it follows that the subconscious mind is trying to get rid of the pregnancy by its nausea and vomiting. In other words, when a pregnant woman vomits, her subconscious mind is trying to bring about an abortion.

The patient is given a paper on which the above is summarized as follows:

There is a conscious and a subconscious mind
The subconscious mind is subconscious
" infantile
" non-rational
" non-moral
dominates the emotional life
identifies eating and pregnancy
produces nausea and vomiting of pregnancy in desire for an abortion.

She is asked to slowly, thoughtfully, quietly review this for fifteen minutes every day and return in one week.

In this work it has been noted that over half of all cases of nausea and vomiting improved within the first week. With these patients it is merely necessary to review the subject matter again, answer questions that arise and continue the daily exercise until the nausea and vomiting stop completely.

CASE 1. K. E. Age 27.

She had two pregnancies, eight and four years previously. In her first pregnancy the nausea and vomiting had been severe for about six months, but tended to subside in the last trimester. In the second pregnancy the same syndrome had persisted throughout the whole nine months. She believed that her physician told her that a further pregnancy would certainly be fatal. First seen at six weeks of pregnancy, her nausea and vomiting was severe, that is it followed every meal. No treatment was given for one week, during which vomiting took place during meals and through the night. She was given the preceding outline. Within a week she had recovered except for one or two periods of nausea a day, and by the second week complete remission of symptoms was obtained. One month later she had excessive salivation and a tendency towards nausea, possibly due to a sister-in-law's story of the patient's husband (an unfounded accusation of extra-marital adventures). After simple discussion the salivation and nausea quickly improved and the pregnancy was without further incident. This case is about a typical response and is found so uniformly that further examples need not be given.

CASE 2. G. V., age 20

Her first pregnancy, before marriage, ended in induced abortion. She presented herself during her second pregnancy at four months gestation. She had had slight nausea but no vomiting and the remaining five months were without incident. A year and a half after delivery she began to have episodes of asthma. Investigation revealed extra-marital relations by the husband with intense emotional upset. After this there was a remission until she moved in with her own family during the housing shortage. Asthma promptly developed in both mother and child. Fainting spells occurred and the red cell count fell to 2,400,000, the hemoglobin to 50%. Improved diet, liver and iron were suggested and again symptoms subsided. In the second month of the third pregnancy asthma and anemia returned. At four months status asthmaticus developed. In the hospital she improved promptly on the usual treatment and was sent home. It was insisted that she move to a house of her own, away from all friends and relatives. Asthma ceased completely in both mother and child as soon as they took possession of their own home, where the mother was not beset by her family and the child had a yard to play and run freely. However, shortly the asthma was replaced by nausea and vomiting which promptly became almost continuous, no food being retained. Improvement on the usual treatment was rapid, and in three weeks even nausea had ceased. Pregnancy was without further incident. This case illustrates a more complicated type with two different emotional syndromes (vomiting and asthma) being almost interchangeable.

CASE 3, G. F., 24

This woman was seen at about five weeks along in her pregnancy. She is the wife of a Clergyman, who had young children by a previous marriage. Previous medical history negative except for spinal fusion at thirteen and appendectomy at fifteen. Nausea and vomiting began at ten weeks. This was the first attempt to explain to any of the clergy the principles of nausea and vomiting. Reception of the theory was good. She improved within two weeks but three months later had severe heartburn followed within a week by an episode of dramatically intense nausea and vomiting. This was coincident with overhearing a conversation based on a disparaging comparison with the first wife. No further nausea or vomiting was present throughout the rest of the pregnancy, although heartburn, insomnia, weakness, excessive gain in weight, aerophagia and so on were recurring symptoms in about that order of importance. These were believed to be mostly due to emotional strains and treated accordingly. This

patient showed the type of case which develops a multitude of symptoms after the subsiding of the original syndrome, but it seemed that they were the less of the two evils.

If the nausea and vomiting persist, it will be important to enquire specifically just how the daily meditation is being done. Questioning will usually elicit the information that it is not done at all, or is being done carelessly. Another week can be tried at home with these women, or better, they can be brought to the office daily where the doctor or nurse can review the subject with them for the allotted time. If several patients are being treated, all can be seen together. What this loses in individual contact is helped by the group psychology.

CASE 4. H. A., Age 27

This woman was seen shortly after her first missed period. Five years previously the one former pregnancy was dominated by nine months of nausea and vomiting. She was said to have gained less than ten pounds during that time. The patient demanded abortion, terrified mostly by fear of nausea and vomiting. The syndrome began suddenly at six weeks and persisted two weeks. A vacation away from all of her family found the nausea stopped, to return promptly when she got home. The usual treatment was given. In a week she was unimproved, but admitted she had not done the exercises. She stayed away from the office a month, during which time nausea and vomiting continued from three to ten times daily, loss of five pounds of weight, weakness and vague abdominal distress. For two more weeks the exercises were tried at home, at the end of which time it was obvious that she neither had tried to perform her meditation nor felt inclined to do so. Upon insisting that she report to the office daily to review the exercise with the nurse, the nausea and vomiting ceased within a week, her weight increased eight pounds in three weeks and she was comfortable through the rest of her pregnancy. Since she was underweight she was encouraged to gain, another thirty pounds being added in the next four and a half months. Except for a hemorrhage of large clots of blood in the seventh month and spotting for two weeks thereafter, the pregnancy was without further incident. Delivery was precipitous.

Many failures will be encountered with this method unless the doctor makes certain that the patient actually performs the exercises. A lack of prompt improvement should arouse strong suspicions and tireless investigation with appropriate measures.

We might emphasize that the patient need not believe this theory on the nausea and vomiting of pregnancy in order to let it produce the desired results. We are not attempting to educate the conscious mind but merely to influence the subconscious. The basis of cure for the symptom complex is the release of emotional tension, and this simple program seems to have answered the problem in the majority of cases under observation.

CASE 5. B. L. Age 36

The patient was seen two weeks after she had missed her first period. There were no previous pregnancies. She gave a long history of symptoms such as insomnia, migraine, tachycardia, nausea, constipation, dysuria, vaginal discharge, dysmenorrhea, dyspareunia. She had been a nurse, with sanatorium care for moderately advanced pulmonary tuberculosis. X-ray examination of the chest and sputum analysis were negative. The Friedman test one week later was reported positive. Meanwhile nausea and vomiting began to follow meals. No treatment except general reassurance was given for six weeks. At three months her husband as well as the patient was becoming alarmed. With much resistance she listened to the proposed treatment and was only induced to try it on a dare. Nausea and vomiting stopped within ten days and did not recur. When this patient went into labor her blood pressure jumped immediately to 180/100. On twelve determinations before labor the systolic had never been above 108 to 130, the diastolic 70 to 85. With heavy sedation labor stopped during the night and the blood pressure fell to 130/80. When the pains began again the systolic pressure rose to an average of 200 and once was read at 220. Two staff members in consultation advised Caesarean section. In the space of five minutes, with absolutely no sedation or any medication whatever, she was moved to the operating room where the anesthetist found the systolic pressure never above 130. Operation and post-operative course were routine. After leaving the hospital she was not seen again, having quickly chosen another physician. She is reported to have observed that her care was very poor, particularly the unsympathetic treatment of her vomiting. She not only did not believe in, but hated, the method used, and performed the exercise stubbornly only to prove it wrong. Yet even in her case cessation of the syndrome was prompt.

CASE 6. H. M. Age 25

This patient had one previous pregnancy, five and a half years previously, with vomiting several times daily until the seventh month. She was first seen three weeks after her missed period with episodes of nausea and vomiting after each meal. A week later it had become an hourly event and she asked about vitamin injections to cure it. The usual treatment was given with improvement in a week and complete remission in three weeks. Nothing noteworthy happened during the rest of the pregnancy except a rather persistent occiput posterior at the time

of labor. Through her pregnancy and now long afterwards she still thinks the process of treatment ridiculous. However she performed the assigned meditation and showed no resentment. Asked to compare the two pregnancies and explain the difference she was content to say simply that "I just felt better all through this pregnancy."

METHOD 2

For those patients not apparently helped by the above within three or four weeks, a different approach may be tried. This is the method familiar to all physicians interested in psychosomatic medicine. In conversation with the patient she is allowed to talk out her reaction to pregnancy. Here the object is not necessarily to do an emotional study of the patient. We are not trying to analyze her subconscious, merely using another means to release emotional tension.

Part 1. Simple story of patient's attitude towards pregnancy.

The patient is encouraged to talk freely about her pregnancy and the doctor merely listens. This is a worth while task for any of us. We all talk too much anyway and for our sins we might suffer a little the meanderings of others. The patient auditor will soon hear much of the folk-lore of medicine in its relation to pregnancy. Tactful explaining away old bogeys, emphasizing the help given to a woman in labor, the safety of modern childbirth, the relative simplicity of caring for a baby, the fun of motherhood—all can be utilized as her story unfolds. Today we often rely on mere printed pages to enlighten the expectant mother when more personal contact will supply what the alphabet cannot. The mere fact that "her" doctor takes time to hear about "her" problem is often the balm in Gilead. If after two or more interviews she seems to have talked herself out and is making no progress we turn to—

Part 2. Directed discussion concerning pregnancy.

This includes inquiry into aspects of pregnancy which have proven relationship to nausea and vomiting. For the sake of brevity they may be simply outlined, the accompanying quotations being a few of the typical comments heard in the consultation room.

a. Patient's infancy and early life as remembered and as heard from others.
   "Father always scared me by saying I was a bad girl and might get caught pregnant some day."
b. Her mother's reaction to children and to birth of the patient in particular.
   "After your birth I was always an invalid."
c. Relation to siblings.
   "My brother used to make fun of my being a girl. He made my whole childhood miserable until he left home when I was ten years old."
d. Care of other children.
   "The punishment I hated most was being forced to care for my sister whom I disliked ever since her birth."
e. Presence at other deliveries.
   "My sister screamed for hours and the doctor didn't help her. I'd rather die now than go through that."
f. Contacts with other pregnant women.
   "My best girl friend died during labor."
g. Previous pregnancies.
   "The nurse said she never saw anyone bleed like I did in my last labor and delivery. I was anemic and took shots for over a year."
h. Why did she get pregnant now? Any one who asks this question routinely will wonder whether most of us are not accidents.
   "It wouldn't have happened if I hadn't had too many drinks."
   "We thought the rhythm method was reliable."
   "We ran out of contraceptive jelly."
i. Is a child desired now?
   "I wonder if I want children with the world so unsettled?"
j. Attitude of husband.
   "He said he would divorce me if I didn't have an abortion."
k. Opinion of parents.
   "Mother told me to have only two children and then we could give them more education than she gave us."
l. Opinion of in-laws.
   "The hardest part of the whole pregnancy was telling his mother. She blames me for getting pregnant."
m. Opinion of other children in the family.
   "My oldest son (16 years of age) says it embarrasses him in school. His friends tease him about what his mother and father must be doing."
n. Opinion of neighbors.
   "We are being evicted from our apartment. The other tenants won't stand for a baby in this apartment."
o. Religious attitudes.
   "Our religion teaches us to have all the children God sends, but we can't possibly raise another with my husband too ill to work."

These and similar aspects of the problem can be introduced. The careful observer will know how to select points that seem applicable in this particular patient; often an unwillingness to discuss any particular viewpoint indicates need of further study along that direction.

By allowing the woman to relieve her hidden fears or guiding her remarks along chosen paths,

at some stage the nausea and vomiting has been found to stop. The precise reason is often not clear; at which point her subconscious releases enough emotional tension to stop the nausea and vomiting may be left to the professional psychiatrist.

It is said that this procedure is time consuming, but it has not always proved to be, while the satisfaction of this treatment's results may be sufficient justification and compensation.

CASE 7. L. B. Age 35

This patient was first seen two years previously for marked emotional instability with aerophagia, headaches, spells of crying, dysmenorrhea, nightmares and fatigue. Physical examination and general laboratory studies were not helpful. She improved slowly over a period of six months and finally enjoyed what she called the best health in years. During previous pregnancies seven and three years before, her nausea and vomiting lasted five and nine months respectively. She came to the office two weeks after a missed period. Nausea and vomiting were almost incapacitating and the usual treatment was begun at once. Vomiting stopped within three days. Two days later there was a normal period. Apparently not only the nausea and vomiting but the delayed period as well were emotional in cause. There followed two normal periods and again a missed period. Six weeks after this period she came to the office with a history of one month's vomiting from three to fifteen times a day. This time a week of home exercises produced no results. Another week devoted to daily sessions with the nurse had what might be thought a slight benefit, but this is not certain. Discouraged with the first method, we suggested a change to the second. In three interviews at weekly intervals it was found that the pregnancy was definitely unwelcome due to lack of adequate finances, interference with her husband's plans and business hopes, impossibility of taking a projected trip, responsibilities of caring for the other children in which her husband seemed not taking his share, and generalized exhaustion from nursing her parents, one a chronic, the other an occasional nursing problem. During discussion of these problems with their relationship to her nausea and vomiting, she became agitated and hysterical. She said she was continually being annoyed about her personal affairs, and of late had dreaded coming to the office. One week later her nausea and vomiting stopped completely and did not return. The remainder of the pregnancy was without incident.

It is obvious that some patients will probably be found who should not be subjected to this program. But even in this patient and other women with a poor measure of emotional stability persistence, a little humoring, kindness and reassurance have not yet been found wanting to produce a reasonably early cure. If this method is widely used there will be occasional disasters depending upon circumstances, and more frequently the more careless and crude the handling of the patient's problems.

CASE 8. D. K. Age 28

This lady was seen at about eight weeks along in her pregnancy. Physical examination and the usual laboratory findings were essentially within normal limits. She gave a history of progressively increasing nausea and vomiting, so that nothing but occasional liquids were being retained. The usual routine was attempted, but although she seemed to be performing it she lost four pounds in ten days. The vomiting became an almost hourly occurrence. She inquired about therapeutic abortion, but was told we did not believe this ever indicated. Hospitalization for parenteral feeding and study was advised. She said it would be considered and disappeared for a week. Called to her home, she was worn out by starvation and dehydrated, fatigued by lack of sleep, retching almost continuously. She was told we could no longer accept responsibility for her care since she refused hospitalization. Before leaving it was suggested that she be more honest with her next physician since (we told her) she seemed to be concealing essential facts. The story then was told as follows. She had been married six years with no pregnancies, supposedly due to aspermia of the husband. Three months before seeing her she had begun, with her husband's knowledge, an affair with a neighbor. After missing her first period, with her husband's blessing, she had changed her home to another city and the man she was now living with was not her legal husband but was the father of the child. Of late he too seemed to be losing interest. She wanted a divorce in order to marry this man that she might ensure her own protection and the legitimacy of the child. Inquiries revealed that under California law divorce and remarriage was impossible within the time limit. Suicide had been tried half heartedly. A mere telephone call to a local lawyer supplied information on the Nevada laws, the city to go to, what lawyer to see there and other general points of procedure. The nausea and vomiting stopped at once, she ate two hearty meals that day and the pregnancy went on without other complication.

SUGGESTIONS

From work with other patients it is obvious that two other valuable methods could be brought into play in treating this syndrome—free association and narcoanalysis. In this study they have not yet been needed, although it is hoped that suitable material may be available later. Espe-

cially in employing narcoanalysis in other problems, during which the nausea and vomiting of pregnancy is sometimes reviewed, it is remarkable how many women will spontaneously suggest that the syndrome is emotional in origin and assign the desire for abortion as the precipitating factor. It is possible that ultimately narcoanalysis with its examination of the patient under mild anesthesia, its opportunity to release emotional tension and its convenience for appropriate suggestion may prove the simplest, safest and quickest method of all. However these fields will, more and more, be left to the specialist. Our intention has been primarily to reduce to its simplest details a method which can be used by almost any doctor who practices modern obstetrics and who can learn the elementary distinction between the conscious and the subconscious, the mind and the emotions.

SUMMARY

The time has come to strip this syndrome of its terrors and superstition and frankly tell our patients that the nausea and vomiting of pregnancy often is a symptom, emotional in origin, due to the subconscious rebellion against pregnancy and the subconscious desire for an abortion. Cure is usually easily effected by psychological treatment, whose intent is the release of emotional tension, not necessarily the convincing of the patient. Two simple methods are presented which have been tried routinely for over five years in more than fifty cases. More complicated methods are probably needed but rarely, and when required possibly should be left to the specialist. The psychiatrist is not consulted as much in obstetrics as his help is needed. It is hoped that large controlled series of cases can be tried and the results published.

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PREGNANCY AND TRAUMATIC NEURITIS

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THE mechanical and physiological changes associated with pregnancy not infrequently produce or precipitate trauma to the nervous, muscular, or skeletal systems. A knowledge and differentiation of the pathology that may be produced is essential to their proper treatment. Little mention is made in the literature of the association between scalenus anticus syndrome, intervertebral disc pathology and pregnancy, or the differentiation of these from obstetrical neuritis and paralysis.

There are two distinct types of neuritis occurring during pregnancy from an etiological standpoint: Gestational neuritis of deficiency or toxic origin and gestational neuritis due to trauma. Neuritis due to a deficiency of Vitamin B, gestational neuritis or neuronitis, sometimes called toxic neuronitis or polyneuritis of pregnancy, is an uncommon complication of pregnancy.[1] This deficiency comes about by the altered secretory function during pregnancy, increased demands, and the starvation that occurs with hyperemesis gravidarum.[2] This type of neuritis may be mild with transitory symptoms, i. e., paresthesia and weakness, or more severe with definite paralysis, pain, visual disturbances, tachycardia, and loss of reflexes. There is also a severe fulminating type which is rapidly progressive and which may cause death within a few days. The association of neuritis with toxemias of pregnancy has been noted with reference to hyperemesis gravidarum. King and Ride[3] mention the relationship between Vitamin B deficiency and the toxemias of late pregnancy. Out of 371 cases of beri-beri occurring in China, 252 cases were complicated by toxemia of pregnancy. The prognosis was considerably more grave in cases of beri-beri associated with toxemia of pregnancy. This was particularly seen in cases of eclampsia in which a mortality rate of 38.8 per cent was found in 36 cases which were complicated by beri-beri, as opposed to 11.6 per cent in 43 cases without complications. There is an obscure relationship between the Vitamin B metabolism, the endocrine system, toxemia of pregnancy, and polyneuritis. Preventative treatment should consist of treatment of the early nausea and vomiting with large doses of the Vitamin B Complex containing adequate quantities of the Vitamin B_1 factor, parenteral injections of liver, dilute hydrochloric acid, and blood transfusions. Recov-

ery from the neurologic symptoms may be slow and complete recovery may not occur until three to eighteen months after the termination of the pregnancy.[2] A true toxic neuritis may occur during pregnancy from drugs, such as triorthocresyl phosphate taken as an abortifacient.

Neuritis occurring during pregnancy may also result from trauma. This second group has been little discussed in the literature and the mechanism of its production has not been clearly defined. The most frequent explanation given for the cause of this neuritis is the trauma to the nerves produced by the presenting part or injury at the time of delivery. Mills[5] reported ten cases of peroneal palsy as a complication of parturition and describes the paralysis as "unilateral and occurs, in most cases, on the side opposite to the one occupied by the greatest diameter of the fetal skull." This explanation undoubtedly accounts for a certain number of injuries occurring to the nerves but a larger group cannot be explained on this postulation. The following cases illustrate other etiological factors in the production of this type of neuritis.

Case I. E. S., aged 31 years, para 0, presented no unusual prenatal complications. She was admitted to the hospital in active labor on December 17, 1947, and delivered a 6½ lb. female infant after 16 hours of active labor. Demerol and scopolomine were given after the cervix was dilated to approximately 6 centimeters. The patient was encouraged to use all of her expulsive efforts after full dilation was obtained. The second stage of labor lasted approximately two hours; the third stage was uneventful. Shortly after the delivery of a normal full term infant, the patient complained of "severe pain in her neck" radiating down the right arm. There was tingling in the fingers and examination showed the reflexes on this side to be diminished. Roentgenologic findings at this time were interpreted as evidence of a ruptured cervical disc. The patient was transferred to an orthopedist for further treatment and improved after conservative treatment. In reviewing her past history ,there was no evidence of injury or a similar attack of pain.

Case II. D. K. ,aged 31 years, was admitted to the hospital on February 27, 1947, in active labor. The patient had one previous pregnancy and delivery in 1944. Her previous pregnancy and delivery were uneventful with the exception of having pain in her neck and the left arm for several weeks following her delivery. This pain started shortly after she delivered and gradually subsided without roentgenologic studies or treatment. Her present prenatal period was without complication and she delivered a normal full term infant after four hours of active labor. The next morning the patient began complaining of pain in her left shoulder, arm, and hand. She was unable to comb her hair and stated that there was marked weakness in the left hand. Roentgenologic findings were interpreted as evidence of a ruptured cervical disc and she was referred to an orthopedist for further treatment. The patient is still under treatment and, although improved after three months, still complains of pain in her neck.

The findings in Case I and Case II were interpreted by roentgenological and neurological examinations as neuritic symptoms secondary to a rupture of the nucleus pulposis in the cervical region. The symptoms were precipitated by pregnancy or delivery. O'Connell[6] noted the increased incidence of intervertebral lumbar disc during pregnancy. Seven of the nine women who bore one or more children with lumbar disc protrusion, developed the symptoms of the protrusion during pregnancy or puerperium. All of these protrusions later proven during surgery. There is no other mention in the literature, to my knowledge, of this association between intervertebral disc protrusion and pregnancy. The above cases were both of cervical disc protrusion.

Case III. C. C., aged 38, entered the hospital in active labor. Her past history was significant in that she had had two previous pregnancies thirteen and eleven years before her present admission; with each she developed a brachial neuritis following the delivery, which persisted for several months. During this admission she delivered spontaneously after a four hour labor; her postpartum convalescence was uneventful with the exception of pain and weakness in the right arm which was first noted the day following the delivery. The pain was dull in character, requiring narcotics for relief. There was also tingling in the fingers. Examination revealed no changes in the reflexes and the parasthesias confined to the distribution of the ulnar and median nerves. Roentgenograms did not show cervical ribs or evidence of intervertebral disc protrusions. The diagnosis of a scalenus anticus syndrome was made and after failure to improve on conservative therapy, the right scalenus anticus muscle was severed. The patient noted immediate relief and recovered completely.

DISCUSSION

It is known that the structural mobility and curvature of the vertebrae and pelvis is altered during pregnancy. These changes are brought about by both postural and endocrine factors. These factors are predisposing cause of interver-

tebral disc pathology and scalenus anticus syndrome, and should be differentiated from the neuritis of a toxic or deficiency origin. The posture of a pregnant woman has been described as follows: "The head and shoulders are thrown backward to compensate for the forward displacement of the growing uterus."[7] The retracted shoulders, carriage of the head (pride of pregnancy), and the accentuation of the natural lumbar lordosis relieves the abnormal tension on the back and leg muscles. With the onset of labor and the involuntary expulsive efforts of the uterus, together with the voluntary straining associated with the second stage, there is noted a change in the curvature of the vertebral column. The woman in her "bearing down efforts" produces a kyphosis. This mechanism changes the pelvic inclination to facilitate engagement and descent of the head. The parturient axis is altered by the curvature of the vertebrae. It is known that hyperextension of the thighs increases the inlet (Walcher position), but I believe that the increased lordosis and protrusion of the abdomen distorting the birth canal increases the expulsive efforts required, changing the axis of the inlet, in this respect the ancient midwife did better than the modern obstetrician. She provided a stool which to a large extent retained the advantages of the squat position associated with kyphosis. This alteration in the curvature of the spine is undoubtedly a predisposing factor in production of intervertebral disc pathology. There is also the endocrine factor responsible for the increased mobility of the spine during pregnancy.[8] A substance named relaxin has been demonstrated; the injection of this substance in non-pregnant animals produces marked relaxation of all joints.[9] The changes have been principally demonstrated with reference to the pelvic joints, although it is reasonable to assume that the vertebrae may be likewise affected, the cartilage becoming more spongy, thickened, and with the altered posture during pregnancy, more susceptible to injury. The expulsive effort on the part of the patient during the second stage of labor may be a precipitating factor in some cases. Patients are encouraged to "pull hard and bear down." This certainly puts a severe strain on the vertebrae. The physiological changes of pregnancy altering the intervertebral disc are probably more important in the development of the pathology than the trauma of pregnancy or labor. Bradford and Spurling[9] state that although increasing interest in trauma as the major factor in producing cervical herniation of the nucleus pulposus may produce a higher figure, in the reported cases not more than one-fourth give a traumatic history. Cloward and Bucy[10], in discussing the relationship between adolescent kyphosis and certain spinal cord tumors, believe that the altered circulation with pressure upon the posterior veins may interfere with growth or soften the spongiosa, with resulting prolapse of the nucleus pulposus. This softening has been discussed with the relationship to pregnancy.

The pathology in Case III was due to compression of the branchial plexus by the scalenus anticus muscle. This syndrome was first described by Murphy[11] and was later discussed more in detail by Oschner and his associates. The scalenus anticus muscle arises from the transverse processes of the third to the sixth cervical vertebrae inclusively, descending in a vertical direction and inserting itself by a tendon to a tubercle on the inner border of the first rib. The branchial plexus and the subclavian artery lies behind the lower portion of the muscle and upon the other scalenus muscles. Thus, the artery and the plexus pass through a triangle in the supraclavicular portion of their course, bordered by the first rib below and the scalenus muscles which form the apex above. Any condition which shortens or thickens the scalenus anticus muscle diminishes the size of this supraclavicular triangle. This structure has been described as a contractile sphincter which may compress the vascular and nerve elements contained within.[13] The changes in posture that occurs with pregnancy, the head and shoulders being thrown back to compensate for the forward displacement of the growing uterus, must bring the scalenus anticus muscle under tension and the configuration of the supraclavicular triangle is altered to produce the symptoms attributed to scalenus anticus syndrome. Many cases attributed to toxic or deficiency neuritis during pregnancy may be due to this compression of the brachial plexus. Conservative treatment of this condition gives relief in the majority of cases.[13] The shoulder should be elevated by a sling and the back held stable with a maternity support. Relief may be obtained when in bed by an arrangement of pillows, one under each shoulder

and the third supporting the head; in this manner the shoulder girdle is held forward and the head elevated.

Treatment of intervertebral disc pathology and scalenus anticus syndrome is a problem for the orthopedist and the surgeon. It is of importance for the obstetrician to recognize these conditions so that proper treatment may be instituted. Greater interest should be taken during pregnancy and labor to protect the back from trauma. With complaint of back pain, a neurological examination is important and x-rays are indicated. A proper support to the vertebral column when back pain is a constant symptom will protect the back from the trauma that may result from pregnancy. The best type of support is one that acts as a sling for the lower abdomen supporting the uterus, loose at the top to allow for normal expansion, not causing compression of the abdominal contents, and giving adequate support to the back. An abdominal binder in individuals with symptoms of back pain should be worn during pregnancy to maintain the proper axis of support and the patient should be instructed during her pregnancy on proper posture. She should avoid straining and heavy lifting. Frequent consultation with the orthopedist and neurologist is important.

SUMMARY

Differentiation of polyneuritis of pregnancy and traumatic neuritis was emphasized with treatment for each condition. Two cases of cervical disc protrusion and one case of scalenus anticus syndrome associated with pregnancy were discussed. The mechanical and endocrine factors associated with pregnancy are felt to be predisposing factors in inducing intervertebral disc pathology, scalenus anticus syndrome, and other associated lesions.

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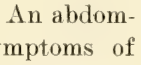
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Editorials

Pros and Cons of Lipotropic Substances

The term lipotropic was originally applied to choline which prevented the deposition or accelerated the removal of fat from the liver—it has subsequently been used to describe the action of other substances with a similar effect on fat metabolism. Strecker first isolated choline from bile in 1849. Its acetyl derative acetyl-choline is now recognized as important in the function of the para-sympathetic nervous system. Choline itself has been established as a constituent of the phospholipid molecule and is known to play some part in the conversion of neutral fat to phospholipid. The phospholipids in turn, are believed to play an important role in the maintenance of normal fat deposition and transportation; although choline is known to play an important part in regulation of the deposition of fat in the liver, little data is available to directly relate choline with the levels of blood lipid fractions observed in health and disease.

Clinical application began about 1924 when it was noted that the feeding of raw beef pancreas prevented the fatty livers in insulin-treated, depancreatized dogs. Hershey and Soskin noted a similar effect in rats using crude egg

lecithin of which the active component was later identified as choline. Casein was found to have similar properties, and its active component was supposedly largely methionine, the latter exerting its effect by the methylation of ethanol-amine to form choline. Dragstedt later showed that certain pancreatic extracts were able to produce similar action separate from choline and protein. McHenry and Gavin have suggested that one of the agents might be inositol, one of the components of the B complex.

The lack of complete enthusiasm in regard to the clinical use of these substances seems to stem from two main deficiencies: First, they are not effective usually, even by subjective improvement in acute hepatitis, and are of apparently slight value in cirrhosis of the liver complicated by ascites. (Ref. Steigmann, Frederick, J.A.M.A. Vol. 137, No. 8, May 1948, p. 239.) Second, apparent clinical improvement as evidenced by: (1) lessening or elimination of symptoms; (2) improvement in all liver function tests except thymol turbidity was shown *not* to be accompanied by histological improvement except for the removal of fat deposition from the liver; the cirrhotic process as evidenced by the formation of connective tissue, either the same or in many cases showed actual progression as shown by Franklin, Falk and others (J. Clin. Path. Vol. 18, 1948). Other than the above two discrepancies all of the experimental and clinical reports indicate a definitely favorable response with the use of a high protein, high carbohydrate, low fat, high vitamin diet with or without: choline alone, choline and cystine or methionine. It was shown by Cayer, however, that the high vitamin diet should be tempered by the limitation of the nicotinamid to 10-15 mgm. per day, rather than the usually recommended 100-150 mgm. per day, since there is good evidence that the higher doses of nicotinic acid may overtax the already depressed methylating capacity of the diseased liver. The therapeutic application of the lipotropic agents has been extended from intrinsic liver disease to include such other pathologic processes as diabetes mellitus in which Paul, Daum and Kemp showed definite salutory effect in normalizing blood lipids, improving the functional status of the liver with resultant augmentation of insulin response, and they have suggested its possible usefulness in psoriasis, burns, hepato-renal syndrome and other disorders of fat metabolism. Since disturbed blood lipid values are found in pregnancy, pernicious, anemia, acute and chronic hemorrhagic anemia, hypo and hyperthyroidism, extra-hepatic and hemolytic jaundice, its possible usefulness in these conditions is postulated but not clinically verified.

In evaluating the clinical failures in cirrhotic liver disease one is left with the thought that patients who are not far advanced yet who fail to respond probably have a cirrhotic process based on other than a deficiency basis. The lack of a complete and reliable liver function test makes accurate observation difficult. Cutillo suggested that restoration of blood protein levels to normal is of prime prognostic importance in judging the benefits of lipotropic therapy in all its indicated usage. The improvement in technique and lessening of serious complications of punch biopsy of the liver will probably aid greatly in further knowledge of this very interesting phase of medicine.

As to the choice of the different regimes it seems not to make a great deal of difference whether one uses a good protein supplement such as dry skimmed milk which is cheap and available, choline alone, choline and cystine or methionine in addition to the usual diet. It has been shown that the amino acid preparations or protein-hydrolysates especially intravenously, are less desirable and probably contraindicated in a diseased liver.

The 1949 New and Nonofficial Remedies, under Choline, is worthy of quotation: "The normal diet contains large amounts of choline, and there is no valid evidence that a pathological state due to choline deficiency exists in man. The possibility of such a deficiency seems unlikely because of the amount of choline present in most food stuffs. In addition, it has yet to be conclusively demonstrated that choline therapy is superior to an adequate diet in the treatment of liver disease."

ROBERT STEVENS, Phoenix, Arizona.

MEDICAL LIBRARY AT STATE UNIVERSITY

At the present time an attempt is being made by the Pima County Medical Society to establish a Medical Library in the University of Arizona Library. It is quite possible that the Library will be established in the very near future. At a recent meeting the organization of such a library branch at the University and the ques-

tion of a library service for medical literature was discussed, and it is believed important to determine the reaction of doctors throughout the State as to whether medical library extension service would be worthwhile if such a service could be established.

The American Medical Association has such a service, but the limitation of ten days in which to peruse and use the literature makes it somewhat disadvantageous to use their borrowing library. The American College of Surgeons likewise has a lending library, but only those members of the American College of Surgeons are eligible. There are commercial services, also, such as Prior and Company, which are available only to their subscribers.

Most communities maintain a somewhat limited library in their local hospitals. The average hospital, however, has no room for storage of the older journals. Usually the amount of room limits the number of journals which can be retained and the older journals are disposed of regularly. It would be to the advantage of all the doctors in the state to have an extension library service established at the State University whereby older copies of all the important medical journals could be collected and filed and used through an extension service.

This service would likewise cover the more rare or less read journals which oftentimes have articles of great interest and are not ordinarily available. There have been a number of private libraries in the state, both in the clinics and in the hospitals, however, a number of these have deteriorated or are not kept up as a central library, situated for general use, as the university library could do.

Response from the doctors of the state would be appreciated to determine if the interest is great enough to support an extension service of medical literature from the University, as this must be the first step before any such service could be planned and later established.

It would be appreciated if all physicians interested in such a project, would write a letter designating their views on this subject to Mr. Carmel, University of Arizona Librarian.

"GRASSROOTS" OBLIGATION

". . . The A.M.A. cannot support or oppose candidates for public office. That is not the province of the A.M.A. or of State and County medical societies. But every doctor, in his own community, if he believes in sound medical practice, and if he believes in maintaining American freedom, not only has the right to support candidates who square with his convictions but he has a sacred obligation to do so."

This exhortation, from the report of the Coordinating Committee of the A.M.A. given at the December, 1949 meeting in Washington, should be heeded by every physician. He should find out, before casting his ballot, how every candidate for public office stands on the President's socialized medicine proposal. And if he should get his patients to do likewise, candidates will understand, unmistakably, the sentiments of the voters.

—Norfolk Medical News
March, 1950



Arizona Medical Problems

CONSULTATION AND CASE ANALYSIS

ARIZONA MEDICINE again presents an unsolved and difficult case from the practice of Arizona physicians, with the Case-Analysis and comments of a specially-chosen and nationally-known Consultant.

Any physician who has an undiagnosed case which has defied other methods of solution may send it for consideration. The case should be completely worked up, but an editor will help compose the report. Whenever the need for an answer is urgent, the Consultant's reply will be sent direct to the submitting physician, before publication.

Please send communications and data to Dr. W. H. Oatway, Jr., 123 S. Stone Avenue, Tucson, Arizona, or care of The Editor, Arizona Medicine.

The current case is one which represents that very interesting and mysterious condition, *hypertensive cardio-vascular disease.* It shows the occurrence of a respiratory infection and the advent of heart failure. The analysis gives as much modern information as it is possible to obtain on the diagnosis and treatment of this and other similar cases.

The CONSULTANT is articulate, and very well qualified to speak on the subject. He is *Dr. Chester Kurtz,* a graduate of Harvard Medical School, and a faculty member at the University of Wisconsin for more than fifteen years.

Dr. Kurtz has been a professor of medicine, and the director of the Cardiology Clinic of the Wisconsin General Hospital. He is the author of articles on cardiac disease, rheumatoid arthritis, a textbook on orthodiascopy, and some pioneer work on the treatment of hypertension. He is a member of numerous societies, including the American College of Physicians, the American Heart Association, the Central Society for Clinical Research, and is a diplomate of the American Board of Internal Medicine. He is well known to many Arizona physicians.

* * *

CASE NUMBER XXI

The patient is **a white male, 50 years of age.** He was born in Greece, has lived in the United States (in Chicago) for 20 years, and **came to Arizona three months ago** in November because he had had pneumonia the previous winter.

There was a history of **"high blood pressure"** for the past two years, with a level of 180-190/110. He had been well otherwise, and was able to work as a candy-maker.

Several days before he was seen in the office he developed **an upper respiratory infection,** and for the past 24 hours he had coughed a bit. During the night he became ill, with weakness, palpitation, and a fever of 102 degrees.

On examination in the office the patient had had signs of an acute coryza in the nose and throat. The lungs were clear by stethoscope and fluoroscope. The pulse was regular, but the rate was 130 per minute. The **blood pressure** was 195/110. There was **a systolic murmur** of moderate intensity at the apex of the heart, transmitted to the left exilla, and the aortic second sound was markedly accentuated. **The heart was generally enlarged,** especially in the left ventricular area, and the aortic knob was prominent.

He was sent to the hospital at once, where he arrived with **a fever** of 103.4 degrees, a pulse of 100, a respiratory rate of 30, an obvious dyspnea, and a recurrent chuckly cough. A urinalysis was normal. The RBC was 4,260,000, the Hb 12/ gm. (81%), the WBC 8,000 with 86% neutrophiles, 13% lymphocytes, 1% monocytes. Blood serology was not determined.

The impression was that he had an acute grippe, with bronchitis; hypertensive cardio-vascular disease, with left ventricular hypertrophy, mitral insufficiency, aortic sclerosis, and fair functional capacity.

The initial therapy consisted of bed rest, sulfamerazine and soda, codeine sulphate PRN, steam inhalations, and nembutal H. S.

During the first night the patient had a great deal of **moisture in the lungs,** with rattling when he breathed, and an expectoration of purulent sputum. **Cyanosis** was noted, **the respiratory rate** rose to 45, the pulse to 135, and the BP was 200/120. There was pain in the left chest at the base. The fever persisted, and he repeatedly soaked his pajamas with perspiration. He was given oxygen by nasal catheter, and he was started on cedilanid (1 mgm. stat, 0.5 mgm. every 4 hours).

A few hours later the condition worsened, with more pulmonary edema, a pallid but cyanotic and wet skin. He was apprehensive. The blood pressure varied between 240-300/140, and the pulse was very rapid, thready, and knocking. The sputum became pink, and finally contained frank blood and clots. The venous pressure was indirectly estimated (positional) as plus 22 to 24 cm.

* * *

QUESTIONS:—

1. What is the mechanism by which a pulmonary infection affects a hypertensive C-V disease?

2. What is the probable cause of this man's hypertension?
3. What is the current opinion of the cause of idiopathic hypertension?
4. What should the treatment of this acute cardiac failure consist of?
5. Was digitalization needed or indicated at the start? At the time failure began?
6. Would any other therapy be available after the acute failure? (diet? surgery?)

M. D., Tucson

* * *

ANALYSIS AND ANSWERS:—

1. *What is the mechanism by which a pulmonary infection affects a hypertensive C-V disease?*

In hypertensive cardio-vascular disease of long-standing, the heart is almost invariably hypertrophied, the myocardium is working under strain and the myocardial reserve is limited. In addition, the coronary circulation is apt to be relatively inadequate, as it almost never keeps pace with the left ventricular hypertrophy.

When a severe pulmonary infection, such as pneumonia, strikes in the presence of these circumstances, a series of insults is heaped upon the heart which may prove intolerable. *A toxic myocarditis is almost the rule* in pneumonia, as can be demonstrated by the routine electrocardiogram. This reduces the efficiency of the heart as a pump. At the same time the elevated temperature, increased metabolism and greater blood flow may *multiply the load* on the heart by several fold.

If the myocardium is unable to meet the demand, failure sets in and *the venous pressure begins to rise.* The heart requires a larger supply of oxygen but the coronary circulation has no reserve and the myocardium suffers a relative hypoxia. This may be accentuated by the *interference with oxygenation* in the diseased lung and failure becomes progressive.

The *pneumonic process itself may form an obstruction* to blood flow through the lung and the right ventricle, which has already been under strain from the failing left ventricle, begins to give way.

In the early stages of decompensation *the blood pressure tends to rise* which adds to the burden of the failing left ventricle and pulmonary congestion develops. In many instances the effect of the toxic process is to *increase capillary permeability,* which facilitates edema formation. As myocardial failure becomes more pronounced, the blood pressure tends to fall, the venous pressure rises, and a vicious circle is set up.

2. *What is the probable cause of this man's hypertension?*

Since there is nothing in the history to point to renal disease or any other specific etiological factor, *this would have to be regarded as a case of essential or idiopathic hypertension,* the cause of which is still unknown. One who has visited Chicago and tried to drive through that fair city might hazard a guess that the fact that the patient had lived there for a number of years may have been a contributing factor to his hypertension.

3. *What is the current opinion of the cause of idiopathic hypertension?*

In the absence of any very definite knowledge as to the true cause of idiopathic hypertension, most students of the subject tend to incriminate *a number of factors,* such as heredity, psychic trauma, worry, nervous tension, and dietary indiscretion. Nathan S. Davis, III,[1, 2] has several times called attention to a deficiency of vitamins B and C as a likely etiological factor. Although Goldblatt himself was careful never to make any claims for his theory of renal ischemia as the underlying cause of essential hypertension, a number of investigators thought for a time that there might be a relationship, most authorities are now in agreement that such is not the case. *The exact cause still remains to be determined.*

4. *What should the treatment of this acute cardiac failure consist of?*

In the case here presented the treatment of the acute cardiac failure might be outlined as follows:

a. In view of the high venous pressure, *immediate venesection was indicated.* The best results are usually obtained under such circumstances if 500 c.c. is removed as rapidly as possible. Venesection is always indicated in cardiac decompensation when the *venous pressure* exceeds 20 cm. of water. The height of the arterial pressure is of no consequence. The procedure can be easily, quickly and neatly accomplished in most instances by the use of *a negative pressure transfusion bottle* such as is standard equipment in any blood bank. The venous pressure usually returns

to normal (6-10 cm. water) or nearly so by the time the venesection is complete and remains down if there is any come-back in the myocardium. If the venous pressure gradually rises during the next few hours, it means that the myocardial reserve has been exhausted. When the pressure again reaches 20 cm. of water, a second blood-letting may be attempted and will sometimes be followed by success. If, after the second attempt, however, the pressure fails to remain controlled, the prognosis is probably hopeless.

b. The patient should be placed in *a sitting position* with the back of the bed rolled well up and *continuous oxygen* should be administered. Either a tent or nasal catheter may be employed, and if the latter, the flow should be at the rate of 6-8 liters per minute. This should be continued for a number of days and, when no longer indicated, should be tapered gradually over a period of 24 hours rather than stopped abruptly.

c. *Strophanthin* 0.5 mgm. intravenously is said to be *the treatment of choice in acute left heart failure. Rapid digitalization* with one of the purified glycosides could be employed in place of strophanthin. In a case of this kind *digoxin* (lanata) would be preferable to digotoxin (purpurea) since, in the event of toxicity, the former would be dissipated from the system much more rapidly than the latter. Even if strophanthin were used for the acute emergency, it would be followed after 12 to 24 hours by digitalis if it seemed to be desirable to maintain a digitalis effect over a period of time.

d. *Intravenous aminophyllin,* 0.5 gm. in 20 c.c. of water or glucose, given very slowly over a period of not less than 10 minutes, every 6-8 hours for 3 or 4 doses. This improves the coronary circulation and augments the effect of digitalis on the myocardium.

e. *Morphine* as needed to allay apprehension and control dyspnea, avoiding undue depression of the respiration.

f. *Avoid sodium* both in the diet and in the medication. Sodium chloride and sodium bicarbonate are both definitely contraindicated.

5. *Was digitalization needed or indicated at the start? At the time failure began?*

Digitalization is always indicated in the presence of myocardial failure, and the earlier it is started the better. Best results are obtained if failure can be anticipated and digitalis started promptly in the hope of preventing frank decompensation.

This does *not* mean that digitalis should be routinely given in all cases of pneumonia as a preventive measure whether there is any evidence of myocardial involvement or not. More harm than good will come of this practice.

6. *Would any other therapy be available after the acute failure? (diet? surgery?)*

After the emergency is over, the pneumonia cleared, and compensation restored, the question of the *treatment of the hypertension* presents itself. The usual hygienic measures of weight reduction in the obese, avoidance of nervous excitement and tension, noon-day rest period, regular hours, and abstinence from tobacco should be instituted. Alcohol should be permitted only in moderation, e. g., two drinks per day, one before dinner and one at bedtime. Tea and coffee may be permitted in moderation. In certain patients the Kempner rice diet might be employed for a number of weeks followed by a low-sodium diet containing not over 800-1000 mgm. of sodium per day. *Many drugs have been tried in the past but the really useful ones may be summed up as follows:*

a. Mannitol hexanitrate in doses of 32-100 mgm. ½ to 1½ grains) q.i.d. The failure of this drug in many instances has been due to inadequate dosage.

b. Veratrum viride, 10 Craw units t.i.d. more or less, as tolerated.

c. Potassium thiocyanate in dosage sufficient to maintain the blood cyanate between 8 and 12 mgm. per 100 c.c. This drug should be used only if laboratory control is available, as the margin between the therapeutic and the toxic range is very narrow. However, this is probably the most reliable and most useful of all the drugs which are used in essential hypertension.

d. Barbiturates in small dosage to allay nervous tension, though they have little effect on the blood pressure per se.

Psychotherapy has been highly effective in some cases where a background of psychic trauma was known to exist.

Sympathectomy presents another avenue of approach in certain selected cases. Most clinicians advocate *an initial trial of medical treatment* along the lines enumerated above. If ineffective after several months, surgery should be considered. This has proved most beneficial in patients 50 years of age or under, whose blood pressure has not become "fixed" and whose renal function is not appreciably impaired. In general, if sympathectomy is to be done, *the earlier it is undertaken the better.* It should not be put off indefinitely and then grasped at as a measure of last resort.

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PHOENIX CLINICAL CLUB

Massachusetts General Hospital

Case Report No. 30121

February 27, 1950

A forty-seven-year-old housewife entered the hospital because of pain in the lower back.

The patient had been in apparent good health until one year prior to entry, when, following a cold, she developed a burning pain over the sacrum and lower back. Similar attacks recurred and apparently progressed in severity. Recently the attacks had lasted for three or four days and had forced her to remain in bed. She felt that she was never free of pain, although it rarely kept her awake. During acute attack, hot packs and aspirin gave relief. About eight months before admission she noticed that the pain radiated to both legs. This was brought on chiefly by sitting for some time and then trying to stand up. She was unable to lift her legs, and attempts to move the thighs brought sharp shooting muscle pains, radiating from hip to knee. At the same time she noted a dull aching pain in the thigh muscles at intervals of about a month, which lasted three to five days. About one month before admission she developed a feeling of fullness and pressing down in the rectum. which was especially noticeable after sitting for some time. Bowel movements did not relieve the sensation. She had had a three-day episode of watery diarrhea with a small amount of blood. She had had night sweats for one year, which were said to be due to the onset of the menopause.

Nine years before entry it was discovered that the patient's serum gave a positive serologic test for syphilis; the spinal fluid was negative. She received antisyphilitic treatment for several weeks at that time, and a full course of treatment seven years later. One year before admission she had a left radical mastectomy for scirrhous carcinoma with axillary metastases, which was followed by x-ray treatment.

Physical examination showed a well-developed fairly well-nourished woman in no distress. The incision over the left breast was well healed, and no evidence of recurrence could be found. The lungs were negative except for a few moist rales at the left base. The heart was normal. The abdomen was protuberant. There was increased lumbar lordosis. The posterior superior iliac spines were above the anterior superior iliac spines. Examination on standing showed full spinal motion; on flexion and extension from a flexed position, considerable pain was present about the sacrum. There was joint tenderness over the coccyx, over the sacroiliac joints posteriorly and along the attachments of the erector spinae muscles to the sacrum. In the sitting position passive movement of the spine was normal. Straight leg raising was 60° bilaterally, with stretching of the hamstrings. Rectal examination showed tenderness over the coccyx. Neurologic examination was negative.

The blood pressure was 140 systolic, 100 diastolic. The temperature, pulse and respirations were normal.

Examination of the blood showed a white-cell count of 7700. The hemoglobin was 75 per cent. The urine was negative. Blood Hinton was Wassermann tests were negative. The blood sedimentation rate was 5 mm. in fifteen minutes, 38 mm. in thirty minutes, 49 mm. in forty-five minutes and 51 mm. in sixty minutes. A blood calcium was 11.1 mg. per 100 c.c. the phosphate 4.7 mg., and the alkaline phosphatase 8.8 Bodansky units. Two lumbar punctures gave clear fluid with total protein of 53 mg. per 100 c.c., a gold-sol curve of 0010000000 and a negative Wassermann reaction.

X-ray examination of the chest showed some scarring in the right upper lung field but was otherwise negative. The heart and mediastinum were slightly displaced to the right. Plain and special films of the lower spine revealed an area of rarefaction in the upper margin of the right sacroiliac joint that was surrounded by dense bone. There was no evidence of disease in the lumbar vertebras or pelvis. A barium enema was negative.

The aches and pains in the thighs continued. There was considerable weakness. On the fourteenth hospital day the patient developed a slight sore throat and a feeling of exhaustion. The temperature was 102° F. Rales were heard in the left base, with increased bronchophony. The white cell count was 21,300. Throat culture yielded a beta-hemolytic streptococcus. She was

given intra-venous fluids and recovered completely from this infection.

On the thirty-fifth hospital day an operation was performed.

DISCUSSION

Dr. Geo. G. McKhann, M. D.

Again we must consider bone lesions including traumatic, degenerative, parasitic, granulomatous chronic infections, and tumors both benign and malignant. We have no information indicative of either trauma, degenerative, or parasitic lesions, so those groups are discarded.

Of the chronic infections syphilis has been present. There is nothing specifically diagnostic about the x-ray picture of luetic bone lesions, and one must depend on the clinical history, findings and the serologic tests. Both Hinton and Wassermann tests were negative. The spinal fluid Wassermann and colloidal gold tests were negative. That should exclude syphilis from further consideration.

Tuberculosis, because of the scarring in the right upper lung field and the rales in the left base, is possible, but there is no evidence of a soft tissue fluctuant abscess that should accompany bone destruction. nor is there usually sclerotic bone about the lesion, although that may occur in caries sicca. Neither tuberculin nor sputum tests are reported. The night sweats might suggest tuberculosis. While tuberculosis can not be positively excluded, other lesions seem more likely.

The absence of inflammation, abscess formation, and leucocytosis are evidence against the other chronic granulomas, including the fungus infections, brucellosis, and low grade staphylococcic infections. Nor is there positive evidence of any kind to support any of these.

Neoplastic bone disease possibilities must be considered. According to Geshickter and Copeland the tumors of spine in their order of frequency are: metastatic carcinoma, primary osseous tumors, glial tumors and tumors of the neural sheath of the spinal cord, tumors of generalized distribution (such as myeloma), tumors of the sympathetic nervous system, and those of teratologic and notachordal origin. And carcinoma of the breast is the most frequent source of metastases to the spine.

Our patient had a scirrhous carcinoma of the left breast with axillary metastases removed one year before admission. By the time a scirrhous carcinoma is 1 to 1.5 cm. in diameter, 25% have metastasized to the lymph nodes, and by the age of one year, according to the patient's story, they are 5 cm. in size and have metastasized in nearly all cases, and approximately 90% of these have metastasized to the internal viscera.

Osseous metastases are single in 25%, most commonly to the vertebra or femurs. There are two types of lesions, the osteolytic and osteosclerotic. Often there is mottling with increased density of bone about the zone of destruction—fibroostosis, an attempt at repair. This is especially true on androgen therapy. Mottling within an area of destruction in the bone favors metastases rather than the punched out effects of myeloma. There may be severe pain and yet not be able to demonstrate spinal lesions on x-ray.

Clinically pain of a severe rheumatic type is common in metastatic carcinoma to the spine, as well as girdle pains and neurologic signs, abdominal pain, numbness of the arms and legs, sciatic neuralgias, and even weakness of the extremities and spastic paralysis. Loss of bladder control and weakness of the rectal sphincter are not infrequent.

Again, according to Geshickter and Copeland, solitary metastatic carcinoma may be simulated by a latent cyst, a solitary focus of multiple myeloma, or by the osteolytic form of osteogenic sarcoma. The latent cyst is distinguished by the distinct signs of ossification in the bone shell, and is nearly always without symptoms, while pain and dysfunction are the rule with metastatic carcinoma. Osteolytic types of osteogenic sarcoma produce bone destruction tending to be asymetrically located and are more rapidly destructive than metastatic carcinoma. Metastatic carcinoma usually appears in an average of thirty months after breast amputation, but has been known to occur after nine to twenty years.

Resection of metastases from the breast is useless as to life expectancy but does relieve pain. X-ray treatment is palliative, and may relieve pain. Castration and treatment with testosterone 50 mg. daily together with vitamines C and D and calcium gluconate has healed fractures due to such metastatic lesions.

One wonders whether the monthly aggravation of her leg pains for three to five days was associated with her periods and whether her remaining breast became sore at the same time.

Another possibility, although usually seen in young patients might be an osteoid osteoma which is a benign lesion with a radiolucent cen-

ter with sclerosis about it. They are cured by excision.

The neural and neural sheath tumors seem excluded by the absence of definite neurologic signs. The rare chordoma may occur in the sacral area, but is usually not definitely diagnosible clinically nor by x-ray.

It would seem that the operation was exploratory with the hope of finding a benign lesion such as osteoid osteoma, a latent bone cyst, or a benign giant cell tumor that might be cured by resection.

What of the laboratory reports? The rapid sedimentation rate indicates some profound disturbance such as an abscess or malignancy, or a systemic disease, rather than a benign localized process. The blood calcium is slightly high, 11.1 mg. It may be increased in the following bone diseases: hyperparathyroidism, multiple myeloma (no Bence-Jones protein reported to us), and neoplastic disease of bones. The phosphatase was also slightly increased, 8.8 Bodansky units which may occur in these bone diseases: in healing of fracture, rickets, generalized osteitis fibrosa cystica, osteitis deformans, severe osteogenesis imperfecta, osteomalacia, metastatic carcinoma of bones (osteoblastic), osteogenetic sarcoma (osteoblastic), renal rickets, and calcification of hemorrhages. Note that neoplastic bone disease appears in both the Calcium and phosphatase lists. The spinal fluid total protein was 53 mg. per 100 c.c. (normal is 15 to 40, usually 28). A slight increase is seen in tabes, and a moderate or marked increase in paresis and the syndrome of Froin (spinal tumors, Pott's Disease) among those we must consider.

My diagnosis is:

(First, second, and third choice)

1. Neoplastic Disease of the sacro-iliac area, specifically a metastasis from the scirrhous carcinoma of the breast.
2. Chronic Granuloma, perhaps tuberculosis.
3. Benign osseous tumor, either a latent cyst, or Giant Cell Tumor. In addition she had a treated and controlled syphilis, and an acute respiratory infection during her hospitalization.

DIFFERENTIAL DIAGNOSIS

Dr. Thomas J. Anglem: May I see the x-ray films?

Dr. Laurence L. Robbins: This is the rather sharply circumscribed area of rarefaction with dense margins that was described. Other than that I do not believe there is anything definite. These areas of calcification are within the abdomen. About the only thing that is at all suspicious is some questionable decalcification in the sacral region.

Dr. Anglem: Can you tell me more about the nature of the radiating pain that extended down the thighs? Was it sciatic in distribution?

Dr. John Reidy: At times she did have a radiating sciatic pain. In the examination before admission to the hospital the pain had been of that description, but it subsided, particularly after rest in the hospital.

Dr. Anglem: We have as the essential features of this case a history of pain in the lower back and sacrum of one year's duration, with the development four months later of a radicular type of pain radiating into the lower extremities. The pain appears to have been continuous, with recurring superimposed acute exacerbations of acute pain. Severe shooting pains were induced by lifting the legs. One month before admission the patient developed a feeling of pressure referred to the rectum that was not relieved by evacuation. She had one episode of diarrhea with blood in the stools, which lasted for three days. She had had night sweats for one year, which were ascribed to the menopause but may have arisen on some other basis.

After admission the patient developed a respiratory infection associated with weakness and exhaustion. This is described as a slight sore throat, but the constitutional symptoms seemed to have been severer than those one would expect from a slight sore throat. From this she appears to have made a good recovery.

The whole picture is complicated by the fact that the patient is known to have had syphilis in the past, carcinoma of the breast one year before, and x-ray evidence of old pulmonary tuberculosis.

The findings of possible significance are pain referred to the sacral and lower lumbar areas on motion and tenderness on palpation of the sacrum, the coccyx and the regions of the insertion of the erector spinae muscles. Also of considerable significance in a negative way is the absence of neurologic signs. The increased sedimentation time and the slight increase in alkaline phosphatase may be of significance, but they are not diagnostic. The increased spinal-

fluid protein I believe to be of considerable significance. The x-ray findings may be independent of or related to the patient's present illness.

The symptom complex that this patient presents—pain in the lower back associated with radiation of pain of the radicular type into the lower extremities—this characteristic of a space-occupying lesion in the spinal canal involving the lower spinal nerve roots. Such a space occupying lesion may arise from a variety of causes. Syphilis should be mentioned because of the patient's past history. It is, however, an uncommon cause of this type of pain, and since the recent blood and spinal-fluid Wassermann reactions were negative, I believe we can disregard it.

Is there a chest film? The description of the film in the history suggests healed tuberculosis.

Dr. Robbins: There is evidence of old tuberculosis.

Dr. Anglem: But no sign of activity?

Dr. Robbins: Nothing I can be sure of.

Dr. Anglem: Tuberculosis may produce symptoms of this type when there is tuberculous involvement of the lower lumbar vertebral bodies with extension of tuberculous granulation tissue into the region of the spinal roots. There is, however, no evidence of such involvement in the lumbar vertebras to support this diagnosis.

The symptoms that this patient presented frequently arise on the basis of a protruded intervertebral disk. The story is characteristic except in certain respects—the absence of paresthesia and of any disturbance of the reflexes, which, however, are not essential for the diagnosis.

The onset is said to have followed a "cold." This cold may have been a nasopharyngitis, which is a not uncommon primary focus from which osteomyelitis develops. A low-grade osteomyelitis of the lumbar vertebras could produce the symptoms of which this patient complained, through formation of an abscess extending into the epidural space. The x-ray films, however, show no evidence of such a disturbance of the lumbar vertebras.

I find it difficult to relate the area by x-ray in the region of the right sacroiliac joint to this patient's symptoms. It does not have the usual features of metastatic cancer, and in view of its unilateral position and its circumscribed character, I do not believe that it is possible to account for the patient's bilateral symptoms on this basis. I believe we can safely disregard it.

A primary or metastatic tumor involving the cauda equina must be considered. Against a primary tumor are the relatively slow progress of the disease and the complete absence of definite neurologic signs after the duration of a full year. The same argument may be offered against a diagnosis of metastatic tumor. If she had had metastatic disease involving the cauda equina, originating from the breast carcinoma, I should expect it to have progressed more than it had in the course of a year and to have shown evidence of bone destruction by that time. Considering these various possibilities it seems to me that the basis of this patient's complaint was independent of the other diseases of which we have previous knowledge; hence, I believe that she probably had a protruded intervertebral disk.

Dr. Benjamin Castleman: Would you like to express an opinion, Dr. Smith-Petersen?

Dr. Marius N. Smith-Petersen: I know the diagnosis. I, too, belittled the presence of the area in the posterior iliac crest. I thought that the changes seen in the x-ray film were due to the surface changes, which often give an area of increased density surrounding an area of decreased density, but I was willing that the biopsy should be performed.

Dr. Paul Zamecnik: When axillary metastases are found, what are the statistics on finding further metastases? I have an impression that they are rather high.

Dr. Castleman: The prognosis is poor in 75 per cent of the cases.

Dr. Anglem: I considered another possibility, osteoid osteoma, based on the description and the appearance of the lesion in the sacroiliac area, but I did not see how the other symptoms could be explained on that basis.

Dr. Carroll B. Larson: We explored the sacroiliac region for the lesion that was seen by x-ray and we came down on an absolutely circumscribed area, as shown in the x-ray. A cross section of this area revealed a cellular-appearing homogeneous pinkish-gray material. I could make nothing out of it grossly. We excised the lesion entirely, and in so doing we uncovered a portion of the sacral side of the sacroiliac joint, including the cartilage. The trabeculation in the anterior body of the sacrum appeared abnormal . I cannot tell why, but it just did not look right, so I scooped out some of the material, which was very friable, and sent it as a separate

and distinct specimen from the lesion in the ilium.

CLINICAL DIAGNOSIS

Osteochondroma of ilium.

DR. ANGLEM'S DIAGNOSIS

Protruded intervertebral disk.

ANATOMICAL DIAGNOSES

Metastatic carcinoma of sacroiliac region.
Fibrous dysplasia of ilium.

PATHOLOGICAL DISCUSSION

Dr. Castleman: The microscopic exemination of the material scooped out of the sacrum showed metastatic carcinoma. The well-circumscribed lesion in the ilium proved to be an area of fibrous dysplasia completely surrounded by metastatic cancer, but there was no carcinoma within the cyst-like area. The cancer, therefore, was not seen on the x-ray film.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

Here is a quick note on a topic which will soon be widely mentioned. Or should be. . . . We have seen three patients in the past three months who have had an ACUTE RESPIRATORY INFECTION, failed to respond to penicillin, been given aureomycin or chloromycetin or both, and have then been allowed to return to work when able, WITHOUT A CHEST X-RAY. . . . . All were found to have pulmonary tuberculosis in the next few weeks or months. . . . This sequence is bound to be seen in the future—if it is not prevented or interrupted.

ANTIBIOTICS — TERRAMYCIN has a broad range of action, defined in the profuse reports from its manufacturer. It does not affect the tubercle bacillus. . . . VIOMYCIN has passed the culture and animal stage of testing, and is said to "suppress the course of tuberculosis to an appreciable degree." . . . NEOMYCIN has still not been purified so that it is safe or valuable for tuberculosis in humans. . . . Notable in drug circles is the suit for a share of profits by one of the STREPTOMYCIN discoverers against another.

Three recent reports may bring physicians up against a condition which would ordinarily seem remote from them—COMMUNISM. . . . 1. Two resolutions were presented to the California Medical Association urging that all officers and delegates be asked to sign anti-communist oaths. . . . 2. A medical society in an eastern state was recently found to be controlled by party-liners. . . . 3. The only official organization for future American physicians, the Association of Internes and Medical Students, has repeatedly had officers who participate in domestic and foreign societies and programs which are known to be Communist or Communist-fronts. . . . It is worth keeping an eye on.

A reader has sent us a companion paragraph to the one about steam-preventers for eye-glasses. . . The method PREVENTS GLASSES FROM SLIPPING DOWN THE NOSE — good for scholars, draftsmen, physicians, and others who lean forward. . . . A touch of Brunswick "Nu-grip" is dabbed on the bridge of the nose. (The ordinary use of the stuff is to assure a grip on bowling-balls). . . . There is said to be no skin irritation, no harm to the rim of the glasses, and no slipping.

A sign of the speed with which new drugs are invented and used is the shift from a single, heavy, occasional textbook to such a volume as the "Year Book of Drug Therapy." . . . Dr. Beckman still has the opportunity to make his frank comments, but more often . . . Among the hundreds of listed subjects are the anticoagulants, the antibiotics, the adrenal cortical hormones, the antihistaminics, the choice of drugs for treatment of barbiturate poisoning, the new hypnotics, the usage of procaine, gonadal substances, and such odd topics as myanesin for tetanus and carbon tetrachloride for herpes zoster. . . . Makes one want to buy a book.

Arizona, recently without a TUBERCULOSIS CONTROL DIRECTOR in the state health department ("we know enough now," says a Tucson editor), can observe New Mexico as that state advertises for one. . . . All they want is a physician trained in public health and tuberculosis work, and they will pay him at least $400. Big deal.

Three Mayo Clinic members, Drs. Shick, Baggenstoss, and Polley, have reported the use of cortisone and ACTH on PERIARTERITIS NODOSA and CRANIAL ARTERITIS in the March 15, 1950 "Proceedings." . . . The drugs produced subjective relief of symptoms in all seven cases.

They produced healing (by biopsy) of the arterial lesions. They may produce symptoms of hypercortisonism, with profound disturbances of the plasma electrolytes. The scars produced by healing often cause VASCULAR STENOSIS AND IN FARCTIONS. . . . Three patients died from cardiac or renal failure. The adrenal glands of the patient who received the largest amount of cortisone showed atrophy. . . . Comment—the hazards of healing are similar to those produced by streptomycin in tuberculous meningitis.

The recent brief editorial in ARIZONA MEDICINE on the Arizona aspects of RABIES contained the suggestion that a better vaccine was bound to come soon. . . . Four months later Drs. Cox and Koprowski of the Lederle Laboratories have described a new vaccine which has been tested on 12,000 dogs and found to be far more efficient than the old material. . . . It is produced from a live virus and attenuated by growth in chick embryos. It is free of paralytic reactions, and produces a solid immunity for as late as a year after vaccination.

Several recent stories of Freud's life have mentioned his early use of HYPNOSIS, which he learned from Bernheim in France. . . . Several recent books on hypnosis have described the history and usage of the procedure. . . . No stranger situation has existed in the past than that which is now present at the University of Arizona,—Thousands of students in a new environment, many of them confused and badly reactive,—the perfect place for a campus psychiatrist. And there he is—a policeman on the local force! He has been an amateur hypnotist for more than 30 years, and is said to use his "natural powers" for benign purposes.

Chronic atelectasis and pneumonitis of the MIDDLE LOBE of the right lung would sound like an uncommon lesion, yet Paulson and Shaw of Dallas can report 32 cases, with resection done in 29 of them.

The huge BULLAE AND BLEBS which may occur in emphysema have been treated in several ways, from laissez faire to resection. . . . Head and Avery of Chicago have used a method which has been restricted to tuberculosis (now obsolete)—the Monaldi negative pressure tube. . . . They obtained excellent results in 8 of their 9 cases, but chest surgeons are cautious in appraising the procedure.

Sometimes it seems that a physician can be a little bit slow. . . . A patient was recently seen by a chest specialist, after being referred to him by a surgeon. Two months previously the patient had gone to see a doctor because of loss of weight, asthenia, etc. The physician took a chest x-ray, gave her a 40-day course of streptomycin at home (without PAS). and then sent her to a desert resort. . . . One could not say that this treatment was malpractice, but the added information would make any responsible M. D. want to punch him in the nose—no sputum or gastric aspiration examination was done; the initial x-ray showed only a fibro-calcific primary complex; and the final x-ray was a mislabeled one belonging to another patient. . . . Such a physician should be forced to give his fee to a medical charity, and attend a post-graduate lecture course.

The KVEIM TEST for sarcoid makes use of an antigen prepared from a sarcoid gland. An intradermal injection becomes positive after 2 months, and is read by skin biopsy. . . . The procedure has a very great diagnostic accuracy, and may become one of the most highly specific of tests. . . . No one knows the cause of sarcoid, but the evidence tends to be against tuberculosis of low virulence.

The death of infants by "ACCIDENTAL SUFFOCATION" in their cribs is not due to simple smothering, nor to posture. . . . Bowden has reported in the Australian Medical Journal that autopsy of 40 cases showed almost all of them to have UNSUSPECTED NATURAL DISEASES. . . . The source of trouble was usually in the heart, ears, or upper respiratory tract, and was explosive in its onset, fatal in effect.

The Phoenix surgeons who have been carefully and steadily preparing themselves for future CARDIO-VASCULAR SURGERY arranged a clever and wise bit of assistance from Dr. Barkley of Houston. . . . His operations on three infants during the sessions of the State Medical meeting were well-timed and gave the procedure good local publicity.

The health hazards caused by the increased use of RADIOACTIVE MATERIALS and RADIATION-PRODUCING MACHINES have been obscure and controversial. . . . A recent editorial in the J. A. M. A. has indicated the confusion and lack of data on the subject. . . . The U. S. P. H. S. has just announced a new RADIOLOGICAL HEALTH BRANCH to "develop a program to meet potential health hazards". . . . It may be able to tell us whether the descendants of those who are repeatedly fluoroscoped will be sterile in 3,000 years, as has recently been suggested in print.

The late and presumably final figures on the 18,000,000 men EXAMINED FOR MILITARY SERVICE in World War II are being published. . . . Smith, Reynolds, and Hand have found that 171,300, 3.5% of all men rejected, had tubercu

losis as the primary reason. (Thousands of others had tuberculosis, but were rejected for other causes.) The age group was 18 to 37 years, and the dates of survey were 1941 to August 1, 1945. . . . Pulmonary tuberculosis was the type in 96.4%, and about one-third were considered to be active. Of every 1,000 men examined, 20.1 had some form of tuberculosis. Negroes showed LOWER rates than whites at all ages, and both races showed an increase with age. . . . Utah had a rate of 2.9 per 1,000; West Virginia and Kentucky had high rates of 26.1 and 25.6; and New Mexico (43.5) and Arizona (49.3) had the highest. The widening gap between tuberculosis morbidity and mortality has been noted by Edwards and Drolet of New York. . . . The mortality has been decreasing, but case-finding is turning up a higher registration than ever before. . . . The latter is a better index of disease in the community than the death-rate.

TELEVISION of surgical procedures is now operated by remote control. . . . A camera, the telesurgical light, and a 2-way sound system are suspended directly over the table. The technician controls the view from outside the room, or in a balcony. . . . Cables, wires, equipment, and the technician are out of the way.

A few conclusions are beginning to come thru on the results of streptomycin therapy in TUBERCULOUS MENINGITIS. . . . Results are better in children, after intrathecal use, when a sulfone is added, and when the care is meticulous. . . . Recovery figures are somewhere between the early 75% "good" results and the low 10% of a V. A. series. . . . Relapses can be expected in some, in spite of prolonged therapy. . . Resistant strains are not as common as from other sources. . . . Necropsies have shown marked reparative signs, but they may include vascular stenosis from scar tissue with a necrosis from the ischemia. . . . Actually and paradoxically, healing may be fatal.

The naturopaths have been understandably upset by a suggestion that higher educational qualifications be required for their practice. . . . They have huffed and puffed up a counter-move which would require physicians to take post-graduate studies before their state licenses could be renewed. . . . Not a bad idea, at that—if it means "studies" and not examinations.

In and Out of Focus

BY THE OBSERVER

" . . . Unrehearsed and Spontaneous. . . . "

Last November when it became generally known that Dr. Morris Fishbein would retire as Editor of the *Journal of the American Medical Association*, effective December 1, 1949, there was considerable speculation among physicians as to what his next move would be. Would he attend the AMA sessions in Washington early in December. Would he have a statement to make? If so, would he denounce his critics within the profession? What would his attitude be toward the AMA?

Then came the announcement that Dr. Fishbein would appear on Mutual Broadcasting System's Meet the Press, an "unrehearsed and spontaneous press conference," and "the most revealing half-hour in radio." Rumors were soon circulating to the effect that he would have plenty to say about the treatment he had received at the hands of AMA officials. The Meet the Press broadcast would provide just the forum he liked best. He could say just what he thought with no holds barred.

As it turned out, Dr. Fishbein had no such thing in mind. On the contrary it was evident he welcomed the chance to make it clear that his loyalties still were with the organization he had served for so many years. Equally apparent was his determination to keep the discussion free of bitterness and animosity.

Less can be said for some—not all—of his questioners on this broadcast. At the "press table" to "fire questions" at Dr. Fishbein were May Craig of the Portland, Maine, *Press-Herald*, Lawrence E. Spivak of the *American Mercury Magazine*, Nate Haseltine of the *Washington Post*, and I. F. Stone of the *New York Compass*.

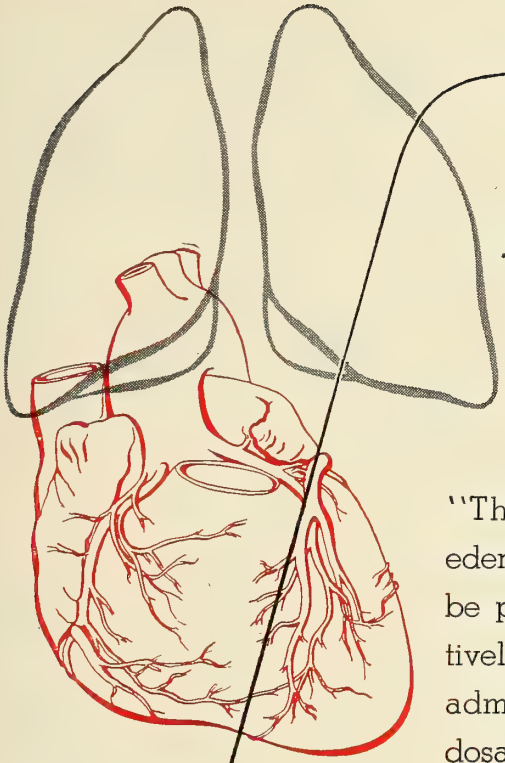
As might be expected, an effort was first made to get Dr. Fishbein to air his grievances against the AMA. Producer Martha Rountree, in her opening remarks, concluded with the following:

"When it was first announced that Dr. Fishbein, at the request of the Board of Trustees of the American Medical Association, would relinquish his position of leadership, newspapers all over the world said that the Trustees had exploded a bombshell. It has been said, Dr. Fishbein, that for the past six months the Trustees forbade you to speak freely on controversial issues and to hold no interviews. Now that you're retired, we hope you will avail yourself of this opportunity to meet the press without reservations. As a starter, I see Mr. Spivak has the first question. . . ."

* * *

Spivak

Well, Dr. Fishbein, can you tell us now why,



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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

1. Barach, A. L.: Edema of the Lungs, Am. Pract. 3:27 (Sept.) 1948.

at the height of your career, after 37 successful years, you retired from the AMA.

Fishbein

Apparently it was the decision of the Trustees, who have complete authority over the editor, that the—those who favor nationalization of medicine had made the editor such a complete target for all of their attacks on medicine, and had personalized the opposition against socialized medicine in the editor, that it was creating great difficulty to win their fight under those circumstances.

Spivak

Well, Dr. Fishbein, did the AMA think they would help their cause by an act which has been described even by your opponents, and I quote, as "rank ingratitude for outstanding service," "as a blow to the prestige of organized medicine," and as "downright unintelligent and even stupid?" Those were the comments in June when you were asked to retire. And how do you feel about this whole business?

Fishbein

Well, you're asking me for a psychiatric opinion—namely, as to what a group of people under certain circumstances think—I am quite unaware what they might think. . . . Now, as to my own point of view, it has always been that an editor of any publication must have complete freedom of expression, and that he must conduct a vigorous campaign at all times against those things in which he does not believe. Finding it impossible to conduct a periodical of which I could be proud under those circumstances, it was mutually agreed that I retire.

Spivak

Well, Dr. Fishbein, when in June they asked you not to speak on any controversial subjects and practically muzzled you, why did you continue? Why didn't you retire immediately, as so many of your friends felt that you ought to?

Fishbein

I think it is no secret that having great pride in the accomplishment of having created a medical journal that is of acknowledged world leadership and nine specialistic journals, and having conducted a considerable number of other successful efforts, I thought it was quite desirable that young men be given at least some training to fill these various positions—five men have been chosen for those positions—and frankly, it was my hope, and still is my hope, that the American Medical Association goes on to greater and greater success.

At this point Mr. Stone delivered himself as follows:

Dr. Fishbein, let's get nice and rough. In view of his advocacy of compulsory health insurance, do you regard Mr. Harry Truman as a card-bearing Communist, or just a deluded fellow-traveler?

Fishbein

I have never said of Mr. Truman any of the things which you accuse me as having said. Now, Mr. Truman is also entitled to his opinions—any President is entitled to his opinions, and if they happen to differ from mine, that doesn't create any particular hostility—I just think that he's mistaken and he thinks I'm mistaken.

Stone

I was just joking, because you have expressed the view that compulsory health insurance is socialistic and communistic in the past in the *AMA Journal.*

Fishbein

I am positive that compulsory health insurance is socialistic.

Craig

Well, Dr. Fishbein, are you against all kinds of socialization—are you against socialized farming, for instance—for farm subsidies to keep up farmers' incomes?

Fishbein

I make a difference in my definitions between what I call "social action" and "socialistic action"—one is political, the other is for the common good.

Craig

Do you think giving adequate medical care to all the people is socialistic?

Fishbein

I think it's good social medicine, and of course, it is my belief that Americans in general get better medical care than any people anywhere else in the world. And of course, Miss Craig, you having traveled throughout the world and having seen a great many hospitals and a good deal of medical care in other countries must agree with me that Americans get better medical care.

Craig

I agree that it could be better. May I ask you if you know that Dr.—that Mr. Ewing, the Social Security Administrator, tells us half our population—70 million people—get only about

$3,000 or less a year, and do not have adequate medical care?

Fishbein

Well, Mr. Ewing until recently was never considered an authority in this field, and most of the statistics he cites are so completely off from what any scientist or physician would accept as competent biometrics, that the least said about them, the better.

Craig

Well, do you deny this one figure of his—that half of our people do not get medical—adequate medical care?

Fishbein

I think the figure is utterly preposterous. I think that better—I think that the vast majority of Americans have access to reasonably broad medical care. Now, I do not say that everybody gets the best of medical care, but I know nowhere in the world where everybody gets the best of medical care.

Stone

But, Dr. Fishbein, didn't your own *AMA Journal* say in 1939 that families receiving less than $3,000 a year could not cover their medical costs without outside aid?

Fishbein

Why, Mr. Stone, those figures were recently put out by Frank Dickinson, Director of the Bureau of Economic Research, and the figures are not just what you said. . . I'll send you a pamphlet. . . .

Stone

. . . no, no, tell the audience. . . .

Fishbein

. . . on that subject—you can read up on it. . .

Stone

. . . tell the audience how I was wrong, then. . .

Fishbein

. . . You were wrong—you were wrong in the fact that . . . it can be well shown that better than 70—that far more than 70 million people in the United States get a high quality of medical care.

Stone

Did I misquote your figures or not?

Fishbein

You mean did I say . . .

Stone

Didn't the *American Medical Journal* in 1939 say that—that American families making less than $3,000 a year could not cover their medical costs without outside aid? Did it or didn't it?

Fishbein

Not that statement, no. . . .

Stone

Well, what statement did it make?

Fishbein

The statement was made that a family with an income of $3,000 per year would have to budget carefully for medical care in order to be sure that they got sufficient medical care in time of need. Now, the American Medical Association has never been a static organization. It has at one time opposed all forms of hospital insurance . . . but just as soon as hospital insurance was shown to be safe and dependable, and just as soon as the states had passed laws which guaranteed that dependability, then we supported hospital insurance.

The line of questioning took another turn when Mr. Spivak asked:

All right. Now, on the compulsory end of it—is the Medical—The AMA against compulsion for compulsion's sake?

Fishbein

I think they believe that those nations which hope to be democratic must place as much responsibility on the individual citizen for the conduct of the intimate affairs of his life as can be placed upon him.

Spivak

But how can they object to—to the compulsory tax when they themselves in their session voted a $25 compulsory tax on their membership, and threatened to throw out any doctor who didn't pay it?

Fishbein

Of course, your entire use of the word "tax" is wholly without any warrant. The courts of the United States clear up to the Supreme Court have ruled that dues in a voluntary membership organization are not a tax and are not compulsory. You don't have to join the American Medical Association.

Spivak

That they say about "a rose by any other name"—it's a tax, isn't it, Dr. Fishbein, to fight what they call socialized medicine?

Fishbein

I would not call it a tax, because no one has to pay it unless he wants to remain a member in the organization. And that applies to all membership organizations.

Stone

They . . . May I—May I proceed? If he doesn't remain a member of the organization, he's punished pretty severely, in his community?

Fishbein

Well, if the people of the United States, who are a democracy . . . punish a man because he doesn't belong to the Odd Fellows or the Masons or the Klan, that is up to the people of the community, it isn't up to the man.

Spivak

Well, Doctor, before we leave this point—and I don't mean to hog this thing—aren't all taxes compulsory?

Fishbein

Taxes are compulsory, and we all pay them.

Spivak

Yes, Well, then—then—then there's nothing too bad about the compulsory aspect of this. . . .

Fishbein

I would like to point out in relationship to the school tax that one of the most jealously guarded rights of American citizens has been the right to control their schools in their own community, and never to delegate to the Federal Government any control over schools.

Spivak

Well, if the states run this thing, as I believe it's proposed for the most part, is that all right with you?

Fishbein

I may say that in the states, or the vast majority of the states, the state also has no control over schools. In the United States the privilege has been carefully guarded that the local community controls the schools.

Spivak

Well, isn't this national health plan going to do pretty much that—turn things over to the states?

Fishbein

Where the money is collected and sent to Washington and sent back to the states, which must meet certain criteria established by Washington, it is in no way the same as a school tax.

Rountree

Are you accepted in a first-class hospital and any other society if you don't belong to the American Medical Association?

Fishbein

That again is left entirely to the hospitals. The hospital rules—and this has been sustained by the Supreme Court in the State of Maryland in a decision last year—every hospital has a right to determine through its own Board of Directors who will or will not be admitted to work in the hospital, and to establish the criteria under which they will be admitted.

Miss Craig and Mr. Stone then laid down the heaviest barrage of the broadcast.

Craig

Well, Doctor, isn't it true that organized medicine has been against practically all the medical aid proposed? You were against workmen's compensation, you were against Federal grants-in-aid, you were against a public health board—you used to be against the voluntary group health insurance, although now you're advocating that, aren't you?

Fishbein

A doctor who is trained as a scientist is accustomed to seeing competent evidence that a procedure will be for the benefit of the patient and not to harm him before agreeing that the procedure is sound. That he does in his practice. In the same way, social measures of any kind which are proposed on a theoretical basis are examined carefully and are studied as to whether or not they can achieve their objectives before they are approved. Now, obviously, again, as evolution goes on and technics improve and safeguards are developed and new types of control are developed in the community, the point of view changes—what was not acceptable becomes acceptable.

Craig

You mean you always lag behind and you have to be forced into any kind of progress that . . .

Fishbein

Well, I point out frequently that the Congress of the United States is 10 years behind medical science in all of its actions, and that has to do with safe-guarding the public against bad insulin, many such things as that.

Craig

But, Doctor, what good does it do for medicine to go ahead if the majority of the people can't get the benefit of it?

Fishbein

I have not admitted and I still do not admit that the majority of the people do not get the benefit of modern medicine in the United States. By far the vast majority of our people get the benefits of modern medicine.

Stone

But, Dr. Fishbein, your admissions obviously come very slowly. Now, are you prepared to admit that it's a good idea to have these free public schools, which you say you approve?

Fishbein

I believe that they — we have free public schools, and I believe that our private school system, which goes right along with the free public schools. . . .

Stone

Well, are you opposed . . .

Fishbein

. . . has been a great advance in technic for advancing the quality of education, and that is obviously a portion of a properly-conducted democracy.

Stone

Yeah, but are you—are you in favor of free public schools?

Fishbein

I am in favor of free public schools.

Stone

Well, this — this health insurance plan wouldn't outlaw their private doctors on the staff. . . .

Fishbein

There is—there is not the slightest resemblance between pushing a six-year-old child into a school and teaching him to read and write, and taking a patient into a hospital to diagnose coronary thrombosis.

Stone

Dr. Fishbein, a hundred years ago people like you fought just the way you're fighting, and have fought for generations against free public education with exactly the same arguments, and it took them just as long to wake up as it's taking you to wake up.

Fishbein

Well, Mr. Stone, it just happens to be that you have a reputation for saying the kind of things you're saying, and I have a reputation for saying the kind of things I'm saying. And this being a democracy, we both go right along and hold our points of view. Now, I have a right to say that your point of view is emotional and that mine is scientific.

At this point, Mr. Haseltine, widely and favorably known to the medical profession in Washington, inquired:

Dr. Fishbein, do you believe that the American Medical Association is sincere in its present expressed desire to further the volunteery—voluntary prepaid health plan?

Fishbein

I am so positive that they are sincere, that when I tell you that they have spent well over $500,000 of their own money promoting the volunteer plan, they certainly must be sincere.

Haseltine

In what period of time, Doctor?

Fishbein

In a period of, roughly, now six years.

Haseltine

And how long was it first proposed that . . .

Fishbein

The voluntary—the voluntary hospitalization procedure was first proposed about 20 years ago —the Blue Cross procedure—and that has grown now to about 62 million people who carry voluntary hospitalization insurance. And I will assure you that if the American Medical Association and the doctors of this country had not supported it, it never would have reached 62 million.

Haseltine

Where have you had your most support? When has the AMA given it its most support?

Fishbein

It has given it its most support as better and better controls were developed. Now at this very present moment Blue Cross does not in any single place cover the complete cost of hospitalization, and it isn't perfect yet. I think new teshnics have to be constantly developed and studied.

Haseltine

Do you think it can be developed to the point where it will cover full cost?

Fishbein

I am working myself on two commissions that are especially concerned with trying to see whether we cannot reorganize hospital organizations' instruction and service to make it much more likely that costs can be fully covered.

Haseltine

Do you think it can ever be done, Doctor?

Fishbein

I think it should be achieved within 10 years, possibly.

Mr. Spivak again directed his queries along an entirely different line.

Doctor, isn't the major question really whether we're going to get, under the new system of—of national health insurance, better or worse medicine.

Fishbein

I think that is what concerns all of us. And I can tell you this—that if I personally were convinced that a nationalized medicine system would give the people of the United States, more people a high quality of medical service, I would be arguing just as much for it as I am now arguing against it.

Spivak

Well, Doctor, isn't it true that under the Army you had complete socialization of medicine and you had a pretty high order of medical . . .

Fishbein

Now, I answered that one one time for Senator Pepper, so it's very easy to answer that one again.

Spivak

Don't give me the same answer, though.

Fishbein

Oh, th—it served with him. Now the answer is simply this—that in the Army the doctor had absolute control over his patients. If you are willing that the doctors of this country shall tell everybody in the country exactly what they shall do when they're sick, and that they shall do that and nothing else—give the doctors the kind of almost totalitarian control over people that they had in the Army in times of sickness—why, then, of course, you abolish freedom entirely. And I would be bitterly opposed to setting up for the public of this country a regimented medical care.

Spivak

In short, what you're saying is that the less freedom the people have, the better medicine they get?

Fishbein

I would say that if a doctor can completely control a patient to the extent that—where the patient goes when he's sick, who takes care of him, what they do for him, what he eats, what tests shall be done—if a doctor can completely control that, he has a better chance with his patient under those circumstances than he does with a completely free patient.

Spivak

But, Doctor, are you sure—do you know what you're saying? You're saying . . .

Fishbein

Exactly—I know what I'm saying.

Spivak

. . . that the less freedom there is, the better medicine.

Fishbein

No, I—for instance, in a controlled experiment in a laboratory, where we work with rats and guinea pigs, we control the experiment—you can't do that with human beings. And in the Army you come closer to the rat-guinea pig set-up than you do in ordinary life.

Spivak

Well, won't you come fairly close, but not as close as we want to come, if you have national health insurance?

Fishbein

Well, the one country that has a completely nationalized health system in the world is Russia. The next nearest to it is Great Britain. In neither of those countries do the mass of the people get anything resembling the kind of medical service the people get in the United States.

Spivak

Well, what about Sweden, which also has a system of health insurance and has pretty good medical . . .

Fishbein

Now, the condition in Sweden is roughly that there are 6 million people, 3 million of them in Stockholm, and they're all Swedes, except for a few Russians that managed to get out of Russia. And when you're dealing with a homogeneous population of that type, you have an entirely different picture from where you have 146 million people in 48 individual states and a completely heterogeneous population.

Here the questioning became personal.

Craig

Doctor, it's very difficult to sympathize with people unless you've experienced their troubles. Now, may I ask, please, if you were ever so poor that you couldn't afford adequate medical treatment yourself or for your family?

Fishbein

Well, I remember when my father was a relatively poor man and my mother had 8 children. But my father always managed to get for her the best obstetrician in Indianapolis.

Craig

I'm asking about yourself.

Fishbein

Well, I was born under those circumstances.

Stone

But you never had the experience of being really poor . . .

Fishbein

I have never been destitute, Mr. Stone, but I will tell you this . . .

Stone

I didn't say "destitute" . . .

Craig

. . . adequate medical . . .

Fishbein

. . . I will tell you this—that there isn't a poor person today in the city of Chicago or New York or any of our large cities who, if he uses reasonable intelligence, cannot get immediate access to good medical care.

Stone

Well, Dr. Fishbein, let me just ask you one very simple question. Now, Americans are a very individualistic people, and yet it's quite obvious that all these different plans that you once fought—for voluntary health insurance, group medicine, and the President's program—are very popular. Now, why do you think the people—so many people—are so dissatisfied with the ordinary way of buying medical care?

Fishbein

Do you think the President's program is still popular?

Stone

Yes, I do.

Fishbein

I happen to think it isn't.

Stone

But answer my question, though. Why do you think so many people are dissatisfied?

Fishbein

Well, I've heard of such a thing as propaganda. I have heard of people being worked on to cause certain beliefs which ultimately they change. I told you that the American Medical Association and the doctors of this country constantly change their opinions and under new circumstances develop new points of view. I have no doubt but what that will keep right on.

Stone

But you haven't answered the question still.

Fishbein

Well, I've answered it as nearly as I can. I . . .

Stone

It's a very real question.

Fishbein

Why, that's too bad.

Stone

Doctor . . .

Craig

Dr. Fishbein, don't you know—frankly, don't you know that the average family simply cannot afford medical care, particularly if they have children? Don't you know that?

Fishbein

I am quite sure, Miss Craig, not only that I dont' know that, and I'm not sure you know it.

Craig

Yes, sir, I do know it!

Fishbein

Well, that's where we come down to examination of the evidence. And . . .

Craig

Don't you believe that the . . .

Fishbein

And I have spent my whole life studying this evidence, and with you, it's a matter of this broadcast or maybe two or three previous newspaper studies. But if you will take people who have devoted their lives to studies of the problem of caring for the sick, you will discover that they are far better informed on the subject than most of the people who are out making the propaganda.

Craig

Do you think they can pay hospital costs as they are today?

Fishbein

I believe that with 62 million people insured against the cost of hospitalization, that we will reach in a short time 80 millon, and that when we reach 80 million, the people in general will take very good care of those that are not covered.

The closing questions were asked by Mr. Spivak:

Doctor—Doctor Fishbein, Mr. Ewing in London tonight said that American doctors are not united against the President's health plan.

Fishbein

Well, I don't know Americans of any kind who are completely in favor of any of the President's proposals — let's leave medicine out of it. Mr. Truman has some other proposals, and I don't know that farmers all favor farmers' subsidies.

Spivak

Why haven't . . .

Fishbein

I don't know that union labor all favors John L. Lewis.

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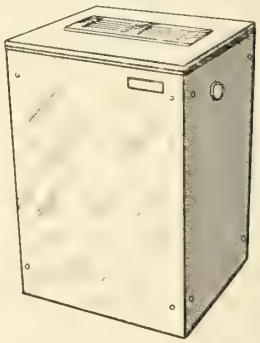
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Spivak

Why hasn't the AMA taken a vote among its doctors on the health program?

Fishbein

Well, I am quite sure that if they did take such a vote, you and I and many other people could predict exactly what the returns will be. And I may say that we have taken votes, and that these votes and every possible type of poll show that 85 per cent of the membership of the American Medical Association is bitterly and completely opposed to Mr. Truman's program.

* * *

Despite the rugged treatment he received at the hands of his questioners, Dr. Fishbein resisted the temptation to retaliate. His attitude and responses won favorable comments from friends and critics alike. Those with whom your Observer talked agreed with him, that Dr. Fishbein's conduct on this occasion reflected great credit upon the former editor and the medical profession.

T. W.

Reprinted from MEDICAL ANNALS DISTRICT OF COLUMBIA, February 1950.

Survey of Nursing Education and Nursing Resources in Arizona

On March 28, 1950, your Executive Secretary received a communication from Martha E. Rogers, R. N., Chairman of the Committee on Survey of Nursing Education and Nursing Resources in Arizona, inviting him to become a member.

It so happens that on March 20, 1950, the Arizona State Board of Nurse Examiners, with the cooperation of the Arizona State Nurses' Association and the Arizona State League of Nursing Education, began an intensive study designed to secure information as to the current and potential supply of nurses, and the present and expected needs for nursing services within the next few years in the State of Arizona. To assist in this work, the U. S. Public Health Service loaned the services of Miss Margaret Arnstein, Director of Division of Nursing Resources, Washington, D. C., who has spent approximately three weeks in the State assisting in the Survey. The need for such a survey has been recognized for some time and not until adequate and accurate statistics are available upon which conclusions can be based, can sound long-range planning be undertaken to meet the needs of the people of this State as pertains to nursing services, in the opinion of this group.

On April 6, 1950, at 8:00 P. M., in the Good Samaritan Hospital, School of Nursing, Phoenix, a meeting of this Committee was held which I attended. There was in attendance approximately thirty-five, comprising representatives both professional and lay of the local schools of nursing and those of the nursing profession in all its branches including health, welfare and education. Miss Rogers presided and Miss Arnstein principle speaker who reviewed progress and findings of the investigation and study to date. The Executive Committee, on approval, proposed the following recommendations which were adopted unanimously with the understanding that certain of its verbiage be either deleted or clarified as agreed:

1. ESTABLISHMENT OF A PROGRAM FOR THE IMPROVEMENT OF NURSING EDUCATION AND NURSING TRAINING FOR THE REGISTERED NURSE.

This was represented to be the greatest single need. It was pointed out that the Survey thus far revealed that of the Supervisors and Head Nurses in the five Schools of Nursing here in Arizona, upon whom rests the supervision, training and teaching of students, 30% do not possess a college degree; of the total number of Head Nurses within the State, 61% had high school graduation and only 13% had engaged in post-graduate study; also, 27% of all graduate nurses of this State do not have a high school education by graduation and only 45% have engaged in post-graduate study ranging from one month to one year. Of all the States, Arizona heads the list in the number of students who drop-out of training before completion of the course of study, indicating the need for proper screening to obtain qualified cadets and improvement of student relations. The turn-over of Supervisors and Head Nurses engaged in training these students is correspondingly high, which does not lend itself to satisfactory training standards.

2. ANY ATTEMPT TO ESTABLISH A BASIC COLLEGIATE TRAINING PROGRAM WITHIN THE NURSING PROFESSION BE DEFERRED AT THIS TIME.

While this might be an ultimate goal to be achieved, it does involve complete understanding and harmony between the Educator and those Heads of Institutions where the practical training must be obtained, in the absence of a Medical School where such facilities and clinical material is available.

3. THAT EFFORT BE CONTINUED TO IMPROVE NURSING TRAINING IN THE FIVE SCHOOLS IN PHOENIX.

Though Arizona's percentage, compared to other states in the country, is high in the number of high school graduates presently entering nursing training, conversely it has a high drop-out percentage. Many schools record from 13% to 18%, while in Arizona, the per cent is 45.

Establishment of more extensive training in the treatment of tuberculosis and mental disorders is of primary importance. It was suggested as a means to this end that possibly arrangements could be made with the VA hospitals at Tucson and Prescott where more adequate facilities are available, a satisfactory program for nursing training in the treatment of tuberculosis could be developed.

Improvement of counseling of students in training it is believed would go far to reduce the high percentage now prevailing of those presently dropping out.

4. THAT HOSPITAL ADMINISTRATIONS STUDY PRESENT-DAY USE OF NURSING SERVICES TO DETERMINE WHETHER SUCH SERVICES ARE USED TO BEST ADVANTAGE.

Throughout the country it is found that quite frequently the professional nurse is required to perform duties which could be adequately undertaken through the employment of nursing aides, thereby making better and fuller use of the professionally trained. Likewise, hospital routines should be surveyed to realize the most efficient practices.

5. STUDY BY VARIOUS NURSING ASSOCIATIONS TO FIND WAYS AND MEANS TO GIVE MAXIMUM NURSING SERVICES TO PATIENTS.

6. THAT THE TRAINING OF PRACTICAL NURSES BE EXPANDED.

It was suggested that possibly Legislation should be sought to standardize such training.

7. THAT THE SCHOOL NURSE BE ENCOURAGED TO DO MORE COMMUNITY WORK.

Extension of counseling services toward the ideal of one nurse to approximately one thousand rather than the present one to two thousand school children. Cooperation between the State Department of Education and State Department of Health to the end that the School Nurse may render greater Community Service.

8. THAT IMMEDIATE CONSIDERATION BE GIVEN THE ESTABLISHMENT OF A CONSULTANT OF SCHOOL NURSING.

Development of a more adequate program.

9. THAT EVERY EFFORT BE MADE TO OBTAIN LEGISLATIVE SUPPORT IN THE APROPRIATION OF FUNDS PROVIDING FOR ADDITIONAL NURSING PERSONNEL AT MENTAL AND TUBERCULOSIS HOSPITALS AND IN CONNECTION WITH PUBLIC HEALTH PROGRAMS.

It was pointed out that of the 1533 patients at the County Mental Hospital, 205 require bedside care and 406 therapeutic treatment. Allowing for supervising personnel and assistants required, only four additional registered nurses are employed assisted by non-professional attendants.

10. ENCOURAGE SMALL INDUSTRIES TO MAKE ARRANGEMENTS WITH HEALTH DEPARTMENTS AND OTHER PUBLIC HEALTH ASSOCIATIONS TO PROVIDE PART-TIME VISITING NURSING SERVICES.

ROBERT CARPENTER
Executive Secretary
Arizona Medical Association.

ANNUAL REPORT OF PROFESSIONAL BOARD, ARIZONA MEDICAL ASSOCIATION, 1949-1950

Meetings of the Professional Board were held in Tucson on July 24, 1949 and in Phoenix on December 18, 1949, and again on April 16, 1950. The Board membership this year has been expanded by the addition of a Chairman of the Hard of Hearing Committee, Dr. J. M. Kinkade and by the addition of an extra member to replace Dr. Hugh Thompson who remained as Chairman of the Seminar Committee. At the initial meeting Dr. Arthur J. Present was elected Chairman of the Board for the year.

Again this year the Seminar groups met in three series. The first was held in Winslow, Flagstaff, Prescott and Kingman from October 15 to October 22. It was conducted by Drs. Liggett and Ireland, respectively internist and surgeon from the University of Colorado Medical School. The second set was held in Yuma February 18 and 19, 1950, and conducted by Drs. Payne and Cleland, respectively surgeon and pediatrician from the University of Southern California. The third was held from February 26 through March 5 in Globe, Safford, Bisbee and Coolidge, and conducted by Drs. Paul Bruns and John Nelson, respectively obstetrician and

pediatrician from the University of Colorado. The seminars were held for two days in each of the respective locations. In the first set, namely in the northern counties, twenty-six members attended or about two-thirds of all who might. The southern seminars were attended by twenty-eight doctors which represents 55% of the possible attendance. The Yuma figures show fourteen attended. The seminar cost except in Yuma was $2,698. Of this amount $1190 was contributed by the State Department of Health, $510 from registration fees collected from the attending physicians, and $998 came from the $3,000 budget of the Professional Board. This, along with $250 of the funds now available which will have to be expended on the Yuma seminars, will account for about 40% of the Professional Board budget for the year. The discussion of the future plans for seminars at our meetings has led to the distribution of a questionnaire to the counties in question so that a direct voice of the doctors involved may be obtained as to whether they wish a continuance of this type of seminar annually, on alternate years, or within our own state. Pending the receipt of replies from this questionnaire, plans for the coming year have not been made. It seems obvious, however, that expenses will be encountered and for this purpose funds should be made available.

A second project was the representation by the Chairman of the Board at the Congress on Medical Education and Licensure and the meeting of the Associated State Postgraduate Committees held in Chicago February 3 through February 7, 1950. Funds for this were obtained from the budget of the Professional Board. A report on this was submitted to the President and Council separately and is here mentioned only to re-emphasize the fact that it seems only right and proper that the state should be represented to gain the benefit of the experience of others in their postgraduate programs and also to understand the newer advances and techniques in this problem.

The separate committees continued to function with very little of a momentous nature to be reported. The subcommittee on Cancer has functioned largely through the educational program of the American Cancer Society because of an interlocking officership. In addition to assisting in the conduct of the annual state school, speakers have been provided throughout the state for various meetings within individual groups. In addition the Cancer Committee has investigated and recommended to the Society action against physicians within the state who are using improper and harmful methods in the treatment of malignant conditions.

The Hard of Hearing program, under the chairmanship of J. M. Kinkade, has been most effective. The State Conservation of Hearing program is slowly taking on a more definite pattern. Lay committees have been appointed, and under the guidance of Mrs. Lydia Newton hearing centers have been established throughout the state and the examinations of all school children have been progressing satisfactorily.

The subcommittee on Venereal Diseases, headed by Dr. Boris Zensky, continues to urge that a premarital examination law be required in the state of Arizona and that the reporting of venereal diseases be improved. They earnestly request that meetings be held throughout the state at which the latest method of treatment of venereal diseases may be disseminated to all practitioners.

The subcommittee on Maternal and Child Health has not been particularly active in the past year. They feel that it cannot properly function until such time as they have someone to contact to present their suggestions. Last year they urged, and repeat this year the appointment of a full time Maternal and Child Health Director in the State Health Department as most essential. It is felt by the Chairman of that committee that the state problem has been one of inadequacy of salary reimbursement.

The subcommittee on Tuberculosis recommends:

I. There has been no Director of Tuberculosis Control in the State Department of Health for the past year. In order that the program of overall tuberculosis work can be continued, it is essential that a qualified director be obtained for this position.

II An attempt should be made to further the development of local Public Health Units in each county in Arizona with qualified and adequate personnel.

III. Inasmuch as concerted attempts have been made through legislation to increase the bed capacity of the present Arizona State Tuberculosis Hospital without success, further efforts should be made to recommend to the various counties that their local facilities be increased and improved, which will indirectly relieve some of the congestion at

the State Sanatorium at the present time and also make provision for care of those cases which are not eligible for State care.

IV. There is a definite need for further study in regard to medical-social work, occupational therapy and rehabilitation on the county and state levels.

This subcommittee has been active in its contact with a tuberculosis hospital, and is at the present time conducting a survey of pneumothorax facilities throughout the state.

Of the general activities of the Board and its meetings the following seem of interest: The Board suggested and recommended to the Council that investigation be made to determine the possibility of getting Arizona premedical students into out-of-state medical schools. It was their suggestion that the expense be borne in part by the State of Arizona. The Board also strengthened Dr. Ward's urgency for an improved reporting of communicable diseases, and a letter to that effect was written to all doctors in the state. At its last meeting the Board had the pleasure of discussing at some length the problems of the Area Medical Consultant of the Indian Service, Dr. Lynn J. Lull. The three major topics of discussion were one: the infant mortality among the Indians with the question being raised as to the lack of adequate and competent medical care, lack of medical education and lack of consultation under the present setup. Secondly, Dr. Lull requested the establishment of a fee schedule for contractual medical services for itinerant Indian labor in camp areas throughout the state and also for services on Indian reservations, since one or more physicians are certainly unable to handle the problem. In the third place, recognizing the growth of the Blue Shield organization in the state, the question came up as to whether or not the Blue Shield and possibly Blue Cross plans might not be utilized, presumably at a higher fee rate, for the care of Indians. It was felt by the Board that this problem exceeded the functions and the authority of the Professional Board, and so the matter is referred to the Council. The Board recommends, however, that very careful coordinating committees and possibly a committee on Indian Health might well cooperate with Dr. Lull and make recommendations based on the obviously acute problems.

As a result of the Board's activities the budget of $3,000 allotted for its functions this year has been utilized until there probably is about $926 remaining.

RECOMMENDATIONS:

1. That the seminars of the State Society for the outlying counties be continued in a manner to be determined by the current questionnaire submitted to the membership of the counties in question.

2. Persistent interest on the part of the Council should be indicated in the problems of mental disease including the improvement of methods of commitment.

3. That the State Society shall support the projected programs for the education of doctors within the state in the defense against the hazards of atomic warfare, a project which has received little or no support from the governor despite the urging on the part of this Society and upon the part of the Atomic Energy Commission.

4. That a budget of approximately $3000 be made available by the Council to carry on the functions of this Board. It is urged by this Board that the expenses of those doctors who go out upon its functions be met, including traveling expenses and a per diem for meals and lodging, when these duties are distinctly those which are concomitant with or a part of their functions as members of the subcommittees.

5. It is earnestly requested that a bulletin or a notice be sent to all component county societies at regular intervals indicating coming meetings and available speakers. The veterans hospitals, county societies and other organizations should be solicited to notify the state office of projected programs.

6. The Board respectfully calls to the attention of the Council that the appointments of Dr. B. L. Snyder and Dr. C. B. Warrenburg expire under the initial organizational appointment in 1948. It is earnestly requested that the Council consider the filling of these two appointments and that a chairman for seminars be continued as a separate member of the Board as has been true in the past year in the person of Dr. Hugh C. Thompson, Chairman of the Council at the present time.

Respectfully submitted,

ARTHUR J. PRESENT, M. D.,
Chairman, Professional Board,
Arizona Medical Association.

To: The Secretary or Executive Secretary of the State or County Medical Society—

I am enclosing herewith marked copies of the questionnaires being used in the survey of physicians' incomes — a joint undertaking of our Bureau of Medical Economic Research and the United States Department of Commerce.

1. The white questionnaire is the short-form (only 1949 income) schedule which is being sent to 100,000 physicians and for which there will be no follow-up.
2. The buff colored questionnaire is also the short-form schedule and is being sent to 10,000 physicians with his code number of the Bureau of Medical Economic Research on the outside of the return envelope. The sole purpose of the code number is to enable the Bureau to address follow-ups to those physicians who do not reply to the first, second, or third request. An attempt will be made to obtain replies from all physicians who receive the buff colored questionnaire.
3. The green questionnaire is the long-form schedule (that is, it requests more information and for four more years, 1945-48) which is being sent to 15,000 physicians with his code number of the Bureau of Medical Economic Research on the outside of the return envelope. Again, the sole purpose of this code number is to enable the Bureau to address follow-ups to those who do not reply to the first, second, or third request. Also, an attempt will be made to obtain replies from all physicians who receive the green colored questionnaire

I thought it would be helpful for you to have a copy of each of these three schedules because you may be asked about them. You understand that no physician will get more than one of these three schedules. Furthermore, approximately three physicians out of eight will receive none.

I hope that you will urge physicians in your society to fill out these schedules which have been prepared by our Bureau of Medical Economic Research and the Department of Commerce. This study bids fair to become the most comprehensive ever made of the incomes of a profession. I hope that you will especially urge your members with small practices to reply in full, as I am informed that earlier surveys of physicians' incomes have not obtained a representative number of responses from physicians with small practices. A fine response from every physician who recevies a questionnaire will help to correct certain misinformation regarding physicians' earnings and expenditures by the American people for the services of physicians.

GEORGE F. LULL, Secretary.



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PASADENA, CALIFORNIA

Arizona Blue Shield Blue Cross

Dr. Carlos C. Craig of Phoenix was elected President of the Arizona Blue Shield Plan at the annual meeting at the Hotel Westward Ho on Sunday evening, April 29, succeeding Dr. E. Payne Palmer, who continues as a member of the Blue Shield Board of Directors. Dr. Craig had been Secretary and Dr. Palmer had been President since the inception of Arizona Blue Shield in the fall of 1947.

The annual meeting was held in conjunction with the fifty-ninth annual meeting of the Arizona Medical Association. The Association's House of Delegates is the corporate body of the Blue Shield Plan.

Dr. E. A. Born of Prescott was elected Vice President, and Dr. J. Lytton-Smith of Phoenix was elected Secretary. Mr. Earle Barrows, a vice president of the First National Bank of Arizona, Phoenix, was reelected Treasurer.

Dr. Robert Cummings, Phoenix; Mr. A. W. Liddell, Bisbee; John Babbitt, Flagstaff, and the Rev. George Ferguson, Tucson, were elected to the Board of Directors, and Dr. E. O. Utzinger, Ray, and Dr. A. I. Podolsky, Yuma, were reelected to the Board. Continuing members of the Board are Dr. Craig, Dr. Born, Dr. Lytton-Smith, Mr. Barrows, Dr. Walter Brazie, Kingman; Mr. John Durkin, Tucson; Dr. Royal W. Rudolph, Tucson; Dr. W. Paul Holbrook, Tucson, and Dr. Palmer.

Dr. Joseph M. Greer, Phoenix, was reelected to the Blue Shield Professional Committee. Other committee members, whose terms continue, are Dr. H. D. Ketcherside, Phoenix, Chairman; Dr. Clarence Warrenburg, Phoenix; Dr. Harry Southworth, Prescott, and Dr. E. M. Hayden, Tucson.

Dr. Craig was named voting delegate to national and district Blue Shield meetings for the next year.

L. Donald Lau, Executive Director of Arizona Blue Shield, and of Arizona Blue Cross, reported that approximately 87 per cent of the eligible, licensed Doctors of Medicine in the State are participating in the Blue Shield Plan, and that 94 per cent of all members of the Arizona Medical Association were Participating Physicians during 1949.

Total payments and accruals to Physicians and Surgeons during 1949 amounted to $302,994.57, or 77.1 per cent of gross earned income, Mr. Lau said. The payments covered 5,586 cases. Participating Physicians received $296,034.20 for 5,425 cases. Non-participating physicians were reimbursed for 161 cases amounting to $6,960.37, or 2.2 per cent of the total payments.

Mr. Lau said in his report that a total of 5,959 cases were submitted for payment during 1949, of which only 373—or six per cent—were rejected. "Eighty per cent of the rejected cases were for the following reasons," he said. "Not fulfilling waiting periods, procedures performed in office, non-surgical or non-obstetrical procedures, or pre-existing conditions. It is interesting to note that pre-existing conditions was the least among the four major reasons for rejections."

During 1949 each employee serviced an average of 3,731 subscribers, as compared with 3,480 in 1948, Mr. Lau said. "The staff as a whole is to be commended for its increased efficiency, loyalty and spirit of cooperation," he told the Board of Directors and the members of the Corporation. "They have never failed to respond when circumstances demanded initiative and extra effort."

Services rendered to Blue Shield members during 1949 by Participating Physicians covered 1,993 cases of anesthesia, for 36.7 per cent of all procedures. Tonsillectomies came second with 722 cases for 13.3 per cent, and maternity cases were a close third with 658 cases, for 12.1 per cent. There were 283 fracture cases, and twenty-seven cases of Caesarean section. The remaining

procedures covered almost the entire field of surgery.

"Our Participating Physicians have shown increasing understanding of the Plan and have given excellent cooperation during the past year," he said. "Future progress of Arizona Blue Shield depends more on the efforts and sacrifices of our Participating Physicians than on any other single factor."

Blue Shield enrollment was 51,837 last December 31, Mr. Lau's report showed, an increase of 54.8 per cent over 1948 and an increase of 18,361 in the member count. "In our two years of operation we have enrolled over seven per cent of our total state population," Mr. Lau said. "Considering our short period of operation, this figure compares very favorably with the national average of 8.4 per cent.

"According to the Blue Shield Commission's third quarter enrollment report, Arizona led all Plans in its size classification in number of members enrolled during the first nine months of 1949."

In concluding his report, Mr. Lau paid tribute to the Blue Shield Participating Physicians "for their understanding and acceptance of procedures that may be contrary to their individual precepts and former routines of practice . . . they have made definite sacrifices and are rendering a real service to their fellowmen, the nation and the Medical Profession."

He also expressed appreciation "for the yeoman service rendered by the Professional Committee . . . few of us are privileged to know of the tremendous amount of time and effort that has been unhesitatingly given by this group."

In his report for the Professional Committee, Dr. Ketcherside also paid tribute to his fellow committee members. "I consider it a privilege to speak for the other four members of the Professional Committee, who have attended all of our many meetings unless prevented from doing so by an emergency," he said. "You may rest assured that their foremost purpose is to be of service to the members and the Participating Physicians. I would like to express the opinion that all of these men deserve the commendation and respect of all concerned for making an outstanding contribution to Arizona Blue Shield, and as representatives of the Medical Profession who have demonstrated by their actions that we are concerned with the public's welfare and are doing something about it."

"The Board of Directors, the Professional Committee and the Blue Shield Staff all have made an honest and sincere effort to provide a real service to the people of the State," Dr. Palmer said. "I would like to thank all of you who have contributed to the progress and operation of Arizona Blue Shield during 1949. It is my sincere hope that your continued support and cooperation will enable us to avoid impulsive mistakes.

"It has been a privilege and a pleasure to serve as your President. Personally, I have derived tremendous satisfaction from the feeling that I am part of a Service that may well prove a major factor in preserving for all of us the American heritage of free enterprise and individual responsibility."

STILL GOING UP—Arizona Blue Shield enrollment at the end of April was 57,299, a net gain of 1,624 for the month and of 5,462 for the year to date. Arizona Blue Cross had a net enrollment of 113,717 at the end of April—a net gain of 1,050 for the month and of 3,885 so far in 1950.

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REPORT TO THE ARIZONA MEDICAL ASSOCIATION ON THE ROCKY MOUNTAIN REGIONAL CONFERENCE ON VOLUNTARY HEALTH INSURANCE HELD IN SALT LAKE CITY, UTAH, MAY 20, 1950

On May 20, 1950, at Hotel Utah, Salt Lake City, Utah, in company with Jesse D. Hamer, M. D., member of the American Medical Association, Council on Medical Service, and presiding Chairman; Carlos C. Craig, M. D., President of the Board of Directors of the Arizona Blue Shield Medical Service, and L. Donald Lau. Executive Director of the Arizona Blue Cross-Blue Shield, I attended the Rocky Mountain Regional Conference on Voluntary Health Insurance. This meeting was authorized by the Board of Trustees and sponsored by the Council on Medical Service of the American Medical Association. This was the third of a series of regional conferences on Voluntary Health Insurance being held throughout the United States and in this instance, included the states of Arizona, Idaho, Nevada, New Mexico, Oregon, Utah and Wyoming. On invitation, the Health Insurance Council, whose membership includes the leading insurance trade associations, arranged for the presence of private commercial insurance representatives who participated in the discussion.

The purpose of these regional meetings is to invite frank discussion of the problems of Voluntary Hospital and Surgical insurance within the states, arrive at some constructive suggestions for improving the over-all situation, stimulate increased enrollment in the voluntary plans and foster closer cooperation and understanding between the Blue Cross - Blue Shield "non-profit" insurance groups, who have successfully pioneered the Blue Cross prepayment plans throughout the country, and private commercial insurance groups underwriting prepayment plans on a "profit" basis.

The program outlined specific problems to be discussed: (a) Availability of Voluntary Health Insurance. (b) Rural enrollment, (c) Individual and small group enrollment, and (d) Benefits and adequate contract. The morning session was devoted principally to a review of Blue Cross-Blue Shield plans throughout the several states there represented, methods of operation, progress and achievements. The afternoon session provided the opportunity for private insurance representatives to offer suggestions relating to the problems presented for discussion during the morning meeting.

Spirited discussion prevailed during the morning session which was enlightening to all those in attendance. The many complex problems reported in the various areas of operation indicated solutions could only be found through careful study of conditions prevailing and wise planning for desired future increased enrollment in the voluntary plans. The phenomenal growth in membership over such a comparatively short period of time as reported by the "non-profit" Blue Cross - Blue Shield groups reflected inspired confidence in public acceptance of their prepayment hospitalization and surgical services plans. Benefits and adequate contract will unquestionably involve complications in "profit' 'versus "non-profit" underwriting. It was my observation that the medical profession would do well to consider very carefully and explore very thoroughly all suggested fixed-fee schedules which may from time to time be offered for consideration by private commercial carriers. Competition is healthy in our free enterprise system which is "The American Way." Providing adequate Voluntary Health Insurance to all those qualified and desiring such coverage is, of course, the objective. Its accomplishment will require the full cooperation of all engaged in the underwriting of this insurance.

Respectfully submitted,

Robert Carpenter,
Executive Secretary.

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Diplomates of American Board of Radiology

The Doctor Picture

March 14, 1950

Dr. Elbert L. Persons,
School of Medicine,
Duke University,
Durham, North Carolina.
Dear Doctor Persons:

Doctor Lull let us see a copy of your letter of February 3rd in which you object to use of "The Doctor" picture on A. M. A. envelopes, and suggested we write you concerning it.

We agree, of course, that the picture is "dated," if viewed literally, but on that basis a great many things are "dated," including the Hippocratic oath, the Bible and the works of Dickens and Shakespeare. Yet in meaning they are still vital and pertinent, even though the language is not of our era.

Similarly, the painting of "The Doctor" is "dated"; the physician, the patient and the surroundings have all changed, in outward appearances. But the compassion in that doctor's face —and his concern over his patient—are characteristics of a good doctor today, as they were then, and if modern practitioners ever come to the point where they believe scientific knowledge can replace personal interest in the welfare of those who depend on them for life and healing, then we will have lost one of our most effective arguments against Government-controlled medical practice.

I am not a doctor, but I have been a doctor's patient, and I think my viewpoint is somewhat typical of that of most patients. When I'm sick, I want *my doctor,* not just any doctor, because my doctor, while he may not be any better than a great many other doctors, is concerned about me, and I have implicit confidence he will do everything in his power to help me.

We are surrounded by doctors in our work here—very able doctors, too, I am confident—and yet when my partner, Leone Baxter, had a miserable hacking cough a few months back, which gave her a bad time, she flew 2,000 miles back to San Francisco to get treatment from "her doctor." Incidentally, he cured her difficulty in short order—and I imagine her peace of mind, which came from faith in her doctor, had as much to do with the cure as his knowledge of medicine.

The Fildes painting of "The Doctor," even though it is old-fashioned, portrays something which is beyond value to the medical profession. To the public, let me assure you, it makes sense to say "Keep Politics Out of This Picture," and the best evidence of the picture's effectiveness is the mighty effort our opponents have made to discredit it. If it weren't effective, the socializers would have ignored it, instead of writing thousands of words to complain about it.

Miss Baxter and I were interviewed recently by a medical writer for one of the great National magazines. In the course of the interview, he said that when we first started to use "The Doctor" picture, he thought it was a mistake—that it harked back to an era that was gone. But he concluded by saying he felt it had become a tremendously effective symbol. And thousands of doctors, who are displaying the picture in their offices, think so, too.

Please know that we don't expect unanimity of opinion on all phases of the A. M. A. program, and that we respect your right to dissent, but we feel "The Doctor" picture has served medicine's cause well. Perhaps it is on the sentimental side, but a little sentiment, in a fight like this, is good medicine. It helps to counteract some of the cheap emotionalism which our opponents are using against us.

"The Doctor" isn't just an out-dated painting. It is a vivid portrayal of the vitally important physician-patient relationship which has made doctors something more than medical technicians. And that relationship is out-dated only in countries which have adopted socialized medicine.

Sincerely,

Clem Whitaker.

Are Doctors Citizens?

There has been plenty of evidence in recent years to suggest that some people in this country are not altogether certain of the answer to the question: are doctors citizens?

The astonishing demand from several political sources, that payment for doctors' services be made by Government paymasters, is compelling indication that some people think the doctor is different from other citizens, with a different sort of civic obligation and a different sort of individual rights.

No other professional man in America — no businessman, no butcher, no plumber, no baker, no clergyman, no grocer, so far as we know—has to date been nominated to share with the doctor the dubious distinction of having his income paid by Government and his product or service made "free" to all comers. It is conceivable such suggestions may come later. Certainly in the logic of socialism, a case could be argued for making the work of all these essential people a function of Government.

Perhaps some day such a case will be urged. We have an idea that when it is, it will split wide open on the plumber. There is a hard core of common sense in the American people and a

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There are a good many things American citizens won't stand still for—and don't expect other citizens to stand still for either. Which brings us back to the question, "Are doctors citizens?"

We'll know more about the answer after next November. The coming Congressional elections will give the whole country a good yardstick with which to measure the citizenship of the medical profession.

Is it a citizenship that influences Government, a citizenship that is informed about candidates, a citizenship that means registration, voting, working for the candidate chosen?

Or is it negative and passive when faced with the vital issues of an urgent time? Is it too busy to be concerned with the public business of democratic Government?

The answer is up to every doctor. And the testing time will be the coming elections — the primaries as well as the final races in November.

This is the time for doctors to demonstrate in action what their citizenship means in America. Conceivably, it may be the last time.

WEST VIRGINIA HOLDS PRESS-RADIO CONFERENCE

"State's Doctors Learn Something of Press Relations" was the heading which the Charleston Daily Mail recently put over a front page story which reported on the first doctor-press-radio conference to be sponsored by the West Virginia State Medical Association.

Dr. Frank Holroyd, state society public relations chairman, promised the statewide newsmen, magazinemen and radiomen present that their complaints would be carried to the state medical society and that they would be acted upon in an effort to "create a more harmonious atmosphere between the profession and news disseminating sources."

Nine of the 13 audience questions asked of the state society panel in the Sunday afternoon session pertained to the A. M. A. and the medical profession's policy and activities. Called for was more information about the A. M. A.'s alternative to compulsory health insurance and what other positive action is favored by the doctors of America. Lawrence W. Rember, director of A. M. A. public relations, gave a number of positive answers which were reported fully in the press of West Virginia.

The very successful conference first heard six 10-minute talks by representatives of the press and radio. A panel to answer any and all questions following the talks consisted of the state medical society president, chairman of the council, medical school dean, health officer, PR committee chairman and members, and Mr. Rember.

Brought out by the newsmen were these points:

Doctors make more news than the average citizen. The use of a doctor's name lends greater credence to a story. Also, radio stations need an authority to quote because they still are afraid to editorialize. Thus, doctors should overcome their fear of having their names used in print or on the air.

Doctors and hospitals should be encouraged to report news when it occurs, and hospitals should have a doctor available for questioning on accidents. A hospital once refused to report an accident on request, but later wanted that same newspaper to run a feature story on its x-ray machine.

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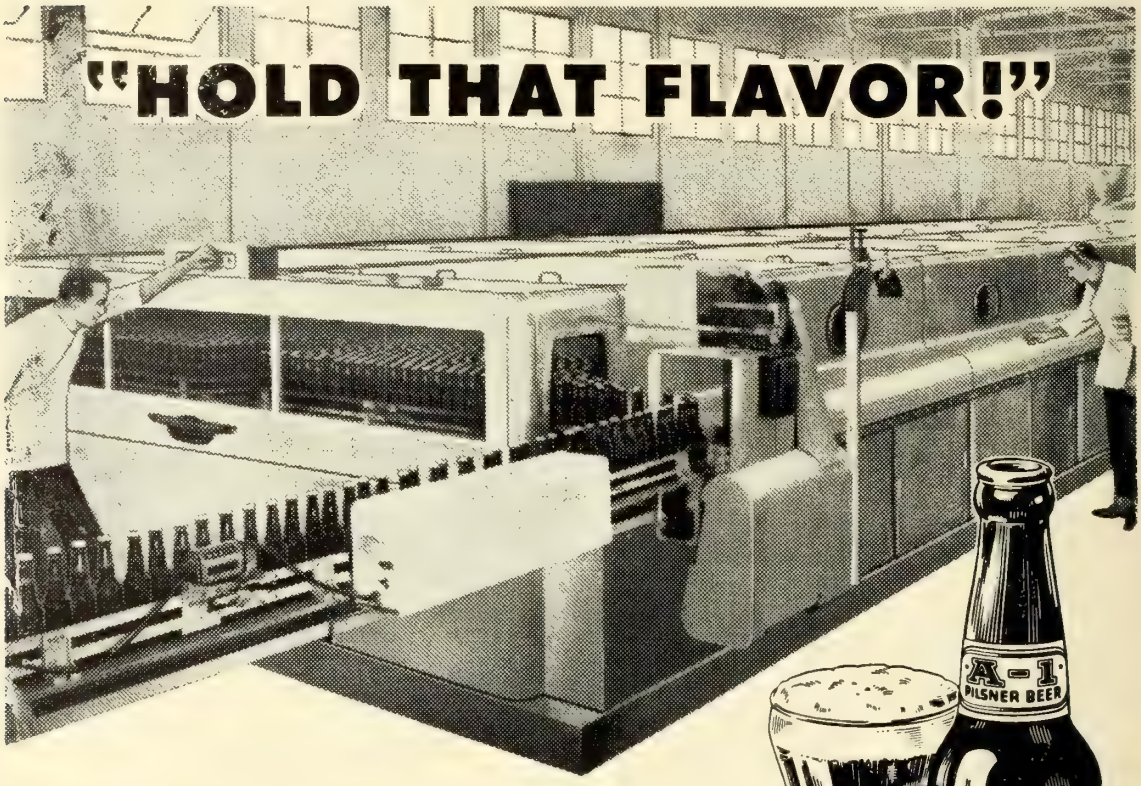
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PERSONAL NOTES

DR. PAUL SINGER, Phoenix, spoke on "Seminal Vesiculitis" at the Western Section of the American Urological Association at Yosemite, California, May 8th.

DRS. BENSON BLOOM and **ROBT. E. HASTINGS,** Tucson, and **DRS. LESLIE R. KOBER, FRANK J. MILLOY, LESLIE B. SMITH** and **KENT H. THAYER,** Phoenix, attended the annual meeting of the American College of Physicians, Boston, Massachusetts April 17-21, 1950.

DRS. JOHN W. STACEY, HENRY J. STANFORD, and **GEORGE D. BOONE,** Tucson, and **DRS. DERMONT W. MELICK** and **HOWELL S. RANDOLPH,** Phoenix, were present at the American Association of Thoracic Surgeons, Denver, Colorado meeting April 14-16, 1950.

DR. ONIE WILLIAMS, Phoenix, was in San Diego, California April 28th to attend the California Society of Pathologists Conference, and the California Cancer Commission.

DR. DONALD POLSON, Phoenix, was recalled to active-temporary duty with the U. S. Army Medical Corps in Washington, D. C., to study Atomic Warfare Medicine. He will return to Phoenix in the middle of May.

DR. JOHN W. FINDLEY, JR., Phoenix, presented a paper on "Atrophic Gastritis" before the American Gastroenterological Society meeting, Atlantic City, New Jersey April, 1950.

DR. JOHN GREEN, Phoenix, took part in a panel on Psychomotor Epilepsy at the American Academy of Neurology meeting in Cincinnati, April 14th and 15th.

DR. E. P. PALMER, Sr., Phoenix, addressed the staff of St. Joseph's Hospital May 8th on "The History of Medicine in Phoenix."

DR. JOHN RICKER, Phoenix, spoke to the St. Joseph's Hospital staff on "Tendon Injuries" May 8th.

DR. ZEPH CAMPBELL, Phoenix, spoke to the Good Samaritan Hospital staff April 24th on "Ectopic Pregnancy." The paper was discussed by **DR. L. CLARK McVAY,** Phoenix. The Medico-legal series of lectures before the staff of the Good Samaritan Hospital was continued April 24th by CHAS. RONAN, who spoke on the subject of "Criminal Aspects of Euthanasia."

DR. ROBERT E. HASTINGS, Tucson, took office as President of the Arizona Medical Association at its annual convention in Phoenix, Arizona May 1st. **DR. ROBERT S. FLINN,** Phoenix, was the outgoing President of the Association.

DR. HARRY T. SOUTHWORTH, Prescott, was elected President-Elect of the Arizona Medical Association at its annual convention, and **DR. HILARY D. KETCHERSIDE** was elected Vice President. **DR. FRANK MILLOY,** Phoenix and **DR. CLARENCE E. YOUNT, Jr.,** Prescott, were re-elected to the offices of Secretary and Treasurer respectively.

Symposium on Psychomotor Epilepsy

A panel discussion of "Psychomotor Epilepsy" was the topic for the joint meeting of the American Academy of Neurology and of the International League Against Epilepsy, held at the Netherland Plaza Hotel, Cincinnati, Ohio, April 14-16, 1950. Arizona was represented by Dr. John R. Green, Phoenix.

The *clinical picture* was discussed by Dr. William G. Lennox. Boston, Massachusetts. It was pointed out that this form of epilepsy (psychic seizures, epileptic fugue states and equivalents) is distinguished by a state of mental confusion in which the patient still performs what appear to be "fairly elaborate purposeful movements," though he often forgets those movements later. The movements in the confused state may superficially appear to be normal, but may involve slight compulsive actions as sudden laughing, running, paroxysmally bad behavior, including violence. The clinical localization in many of these cases is within the *temporal lobe* of the brain.

Medico-legal aspects were discussed by Dr. Hubert W. Smith, New Orleans, Louisiana, who stated: "I would like to see the day when no executions could be done without the convicts' having an electro-encephalographic reading made first." He pointed out that the crime rate is no higher among epileptics than among other persons, and that psychomotor epilepsy which might be mistaken for just "badness," should fall within the legal classification of insanity.

Electro-encephalographic findings were described by Dr. Frederic A. Gibbs, Chicago. Illi-

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nois. In 1937, Gibbs and associates described 6/second flat topped waves as a frequent generalized EEG abnormality in Psychomotor epilepsy. In 1946, Gibbs and other associates found that by utilizing *sleep recordings* and anterior temporal leads, well over 90% of the patients showed definite focal abnormalities in one or the other anterior temporal areas, occasionally bilaterally; i. e. spike discharges. Psychomotor epilepsy is now deemed to be the *most common type of focal epilepsy.*

Drug therapy, discussed by Dr. Jerome K. Merlis, Framingham, Massachusetts, has run the gamut of barbiturates, bromides, Dilantin, Mesantoin, and more recently Phenurone, with equivocal results, which in general are discouraging in comparison to other types of epilepsy. He stated that Dilantin and Phenobarbital appear to be the safest, and that the others should be tried with caution if necessary.

Pharmacology of anti-epileptic substances as applied to Psychomotor epilepsy was the subject of Dr. J. E. P. Toman, Salt Lake City, Utah. Dr. Toman stated that Phenurone appeared to be in the lead for successful treatment, and that it should not be abandoned because of the occasional side effects reported, i. e., aggravation of psychic abnormalities and liver damage. This drug has not been released for general use, pending the results of several series of controlled studies.

Surgical and Physiological Aspects of Psychomotor Epilepsy was the subject of the remainder of the symposium.

Dr. Percival Bailey, Chicago, Illinois, traced the historical aspects of surgical treatment of focal epilepsy, and described the effects of bilateral anterior temporal extirpations in this disorder. The first operations for this type of focal epilepsy were carried out by Dr. Bailey. It was stressed that surgical intervention is employed as a last resort in patients who have failed to respond satisfactorily to drug therapy, and only if the clinical and EEG findings are definitely focal.

Dr. John R. Green, Phoenix, Arizona, reported on 22 patients who had been operated on during the past two years in Phoenix—19 having been done as part of the program of the Neuro-surgical Unit of the Arizona State Hospital. Electrocorticography in psychomotor epilepsy in these patients showed spontaneous spike discharges from some portion of the anterior 4 cm. of the temporal lobe—lateral, inferior, medial or tip. Anterior temporal lobectomy is now deemed to be the operation of choice. Of 16 patients operated during 1948-49, seven have had no recurrence of attacks, seven have had comparatively few attacks, and two are unchanged by the surgery. A five-year follow-up is necessary to determine the lasting qualities of this therapy.

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WOMAN'S AUXILIARY

CONVENTION REPORT

The twentieth annual meeting of the Woman's Auxiliary to the Arizona Medical Association was held at Hotel Westward Ho, Phoenix, on May 1, 2 and 3. On Sunday morning, April 30, the Auxiliary president, Mrs. Charles E. Starns, and the president-elect, Mrs. Benjamin Herzberg, met with the Council of the Association and on Monday morning Mrs. Starns reported to the House of Delegates on the Auxiliary's work during the year in the field of Public Relations, emphasizing the fact that the traditional pattern of Auxiliary activities was no longer adequate and briefly outlining the character and scope of the work that had been carried on to help establish a better understanding and greater appreciation of American Medicine and the services and achievements of our doctors.

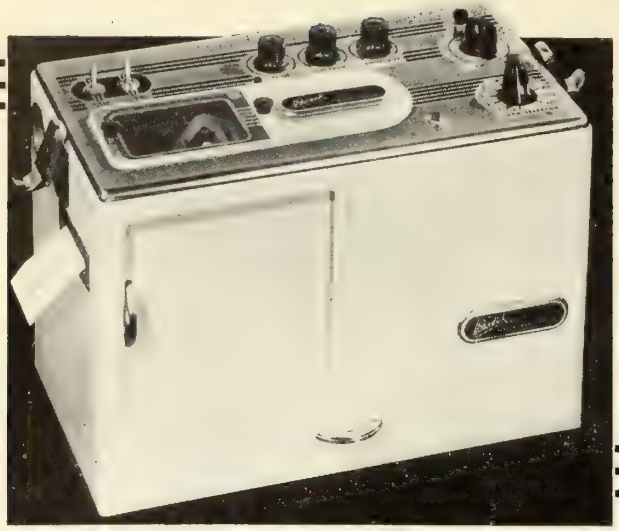
At ten o'clock on Tuesday morning, Mrs. Starns called to order the first general session. Following the invocation by the Rev. J. K. Story of Morningside Presbyterian Church of Phoenix, words of welcome by Mrs. Carlos C. Craig, and a response by Mrs. V. A. Smelker, there were reports of the Executive Board, the State Officers, and the Chairmen of the standing committees.

The Student Nurse Fund, provision for the establishment of which was voted at the Convention a year ago, has now sufficient money to make interest-free loans to two young women to finance a nurse-training course at any of the hospitals in the state which offer these training facilities. Screening of applications and the selection of recipients of the loans are being done by the Loan Committee on nine members, of which Mrs. Carlos C. Craig of Phoenix is chairman.

A report from the president of each of the county auxiliaries was presented. Each auxiliary had participated in extensive philanthropic projects, had emphasized member-education in current trends of thinking and actions with the resulting problems created, had outstandingly engaged as an organization in service activities in the respective communities, and had arranged for a Health Day program to which the public was invited. For the meetings held in Phoenix and Tucson, the State Public Relations chairman arranged for Dr. Ralph Gambell, a former English doctor now preparing for citizenship and active practice of medicine in the United States, to be the guest speaker. The Arizona Medical Association provided speakers for the other Health Day programs.

At the luncheon honoring the past-presidents there was a brief musical program and an address by Mrs. Jesse D. Hamer, past National President and currently National Historian of the Auxiliary. Mrs. Hamer prefaced her address with a brief history of the Auxiliary and then presented an account of some of the outstanding work in which the Auxiliary has been engaged in recent months. She emphasized the need for each Auxiliary member to recognize her individual responsibility in the education program and to participate enthusiastically in the carrying out of pertinent projects and plans, explaining that now, as never before, the Auxiliary has tasks in which it must not fail—tasks which must be planned judiciously and executed diplomatically—tasks which cannot be done by a few who are officers or leaders, but which require serious study and diligent fulfillment on the part of every doctor's wife. Thirteen honor-guests were present. They were: Mesdames C. A. Thomas, Joseph M. Greer, James M. Meason, Charles E. Patterson, V. G. Presson, B. B. Edwards, Jesse D. Hamer, Edward M. Hayden, James H. Allen, Paul H. Case, Hervey S. Faris, Harry T. Southworth, and Thomas H. Bate, Jr.

At the Wednesday morning session, after greetings by Mrs. Karl S. Harris, and Memorial services conducted by Mrs. James R. Moore, Mrs. Thomas A. Hartgraves, State Commander of the Arizona Division of the American Cancer Society, spoke on the work and plans of the Cancer Society in our state. She closed her address with an account of the educational conference conducted by the Society in Phoenix this year and a special urge to each county auxiliary to include in its next year's plans a program designed to bring to the people in its community vital information relative to the detection of the presence of cancer at an early enough time that treatment may be effective.



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To give recognition to the Members-at-Large and the very essential public relations work that is theirs in the counties in which auxiliaries have not been organized, the Members-at-Large present were introduced and a general discussion held on the means by which a closer fellowship might be established between members-at-large and the members of organized county auxiliaries.

Mrs. Joseph M. Greer, a member of the Child Colony Board, reported on the progress being made on the physical plant of the institution now under construction near Coolidge.

A Public Relations Forum was included in the Convention program to make the Auxiliary members more alert to the fact that our work must harmonize with the Association's program if we are to utilize to best advantage our latent possibilities as a "helper unit" of that organization. It seemed definitely necessary that the Association give expression to what it believed the Auxiliary could do during the year ahead that would prove most beneficial to the overall program of Medical Public Relations.

The moderator for the Forum was Mrs. Louis Hirsch and Dr. Marriner W. Merrill, the Association's Public Relations Chairman, was the speaker. Dr. Merrill reviewed the public relations work of the Association in former years as contrasted to the changed and increased program which conditions now make necessary and outlined ways by which the Auxiliary could effectively coordinate its activities in this field with the work being planned and executed by the Association.

The importance of liaison between the Auxiliary and the Medical Associations and Societies was established from the reports on the Regional and National levels that the most outstanding public relations accomplishments had been in those states in which there had been full cooperation of the Auxiliary and the parent organization in the basic planning of the projects. Dr. Merrill not only assured the Auxiliary of the cooperation of his Committee and the Central office in Phoenix but indicated that opportunity would be given for the Association and Auxiliary to plan together special projects for the dissemination of general health knowledge and for the imparting to the public of factual information relative to currently proposed legislations and the ultimate results which could be expected should they be enacted.

He urged the County Auxiliaries to avail themselves of the assistance of their Medical Society's Auxiliary Advisory Committee in planning and executing their program of action for the coming year, to keep up-to-date both the cross-files on members' positions in local organizations and the files concerning key lay people of the community, and to further in every possible way the building up of their organization into an integrated unit which can be better able to function as a public relations force whenever an appropriate occasion arises.

Mrs. James H. Allen prepared and submitted for adoption the courtesy resolutions.

The following officers, elected to serve during 1950-1951, were installed by Mrs. Harry T. Southworth:

President ..... Mrs. Benjamin Herzberg
President-Elect ..... Mrs. Royal W. Rudolph
First Vice-President ..... Mrs. D. L. Secrist
Second Vice-President ..... Mrs. George S. Enfield
Recording Secretary ..... Mrs. Alvin Kirmse
Treasurer ..... Mrs. Brick P. Storts

Special guests at the final luncheon were representatives of the Medical Association: Drs. Robert E. Hastings, Robert S. Flinn, Frank J. Milloy, Preston T. Brown, and Marriner W. Merrill. Mrs. Herzberg, the new president, briefly spoke of the Auxiliary's aims for the year ahead, urged the fullest assistance in Auxiliary work from the members, and presented those who had been selected for appointment on the Executive Board.

Respectfully submitted,

Mrs. Charles Starns,
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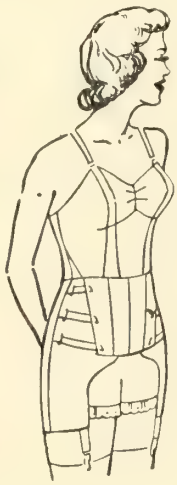
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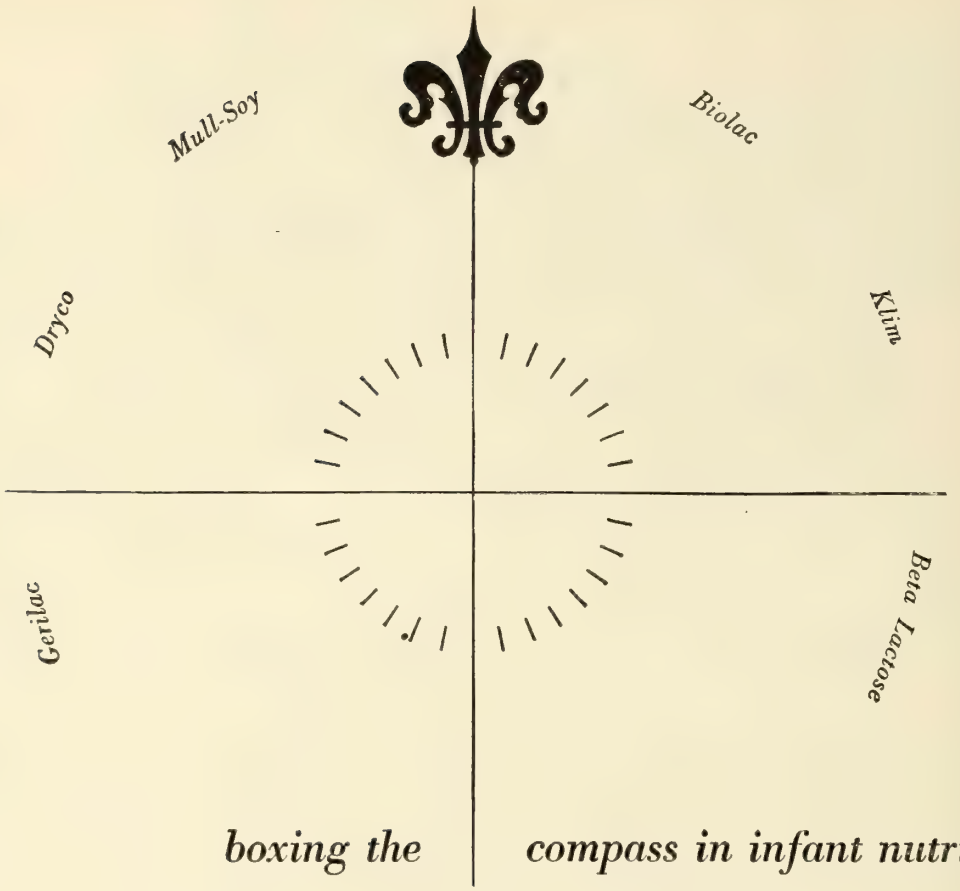
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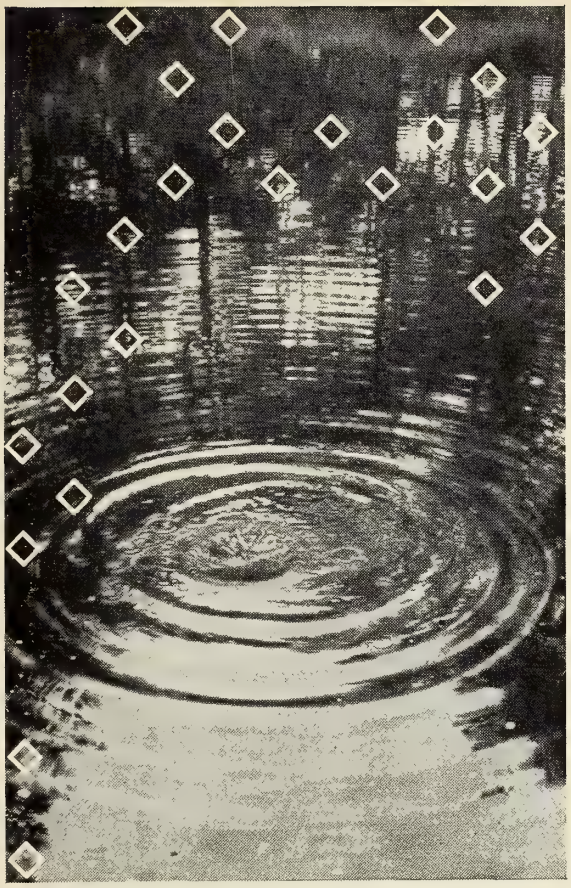
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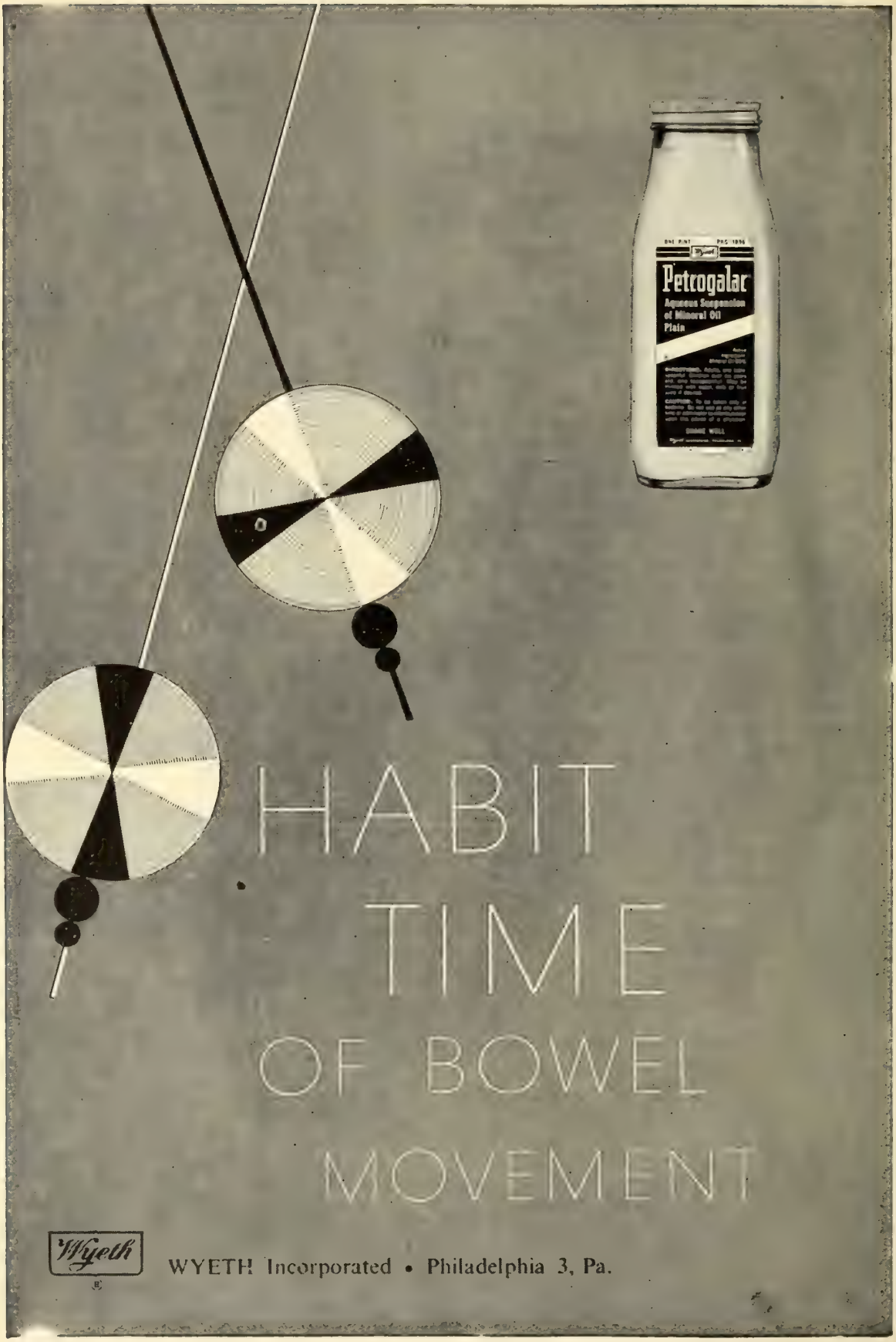
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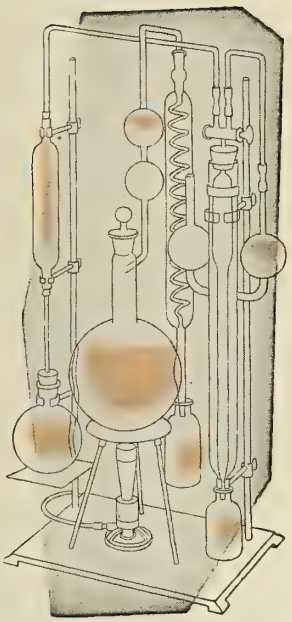
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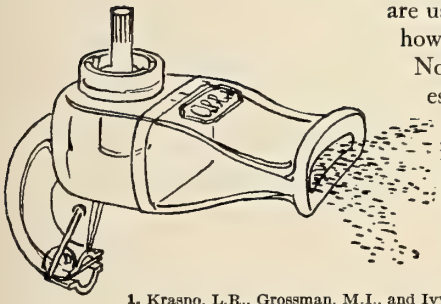
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1. Krasno, L.R., Grossman, M.I., and Ivy, A.C. (1949), The Inhalation of 1-(3',4'-Dihydroxyphenyl)-2-Isopropylaminoethanol (Norisodrine Sulfate Dust), J. Allergy, 20:111, March. 2. Krasno, L.R., Grossman, M., and Ivy, A.C. (1948), The Inhalation of Norisodrine Sulfate Dust, Science, 108:476, Oct. 29.

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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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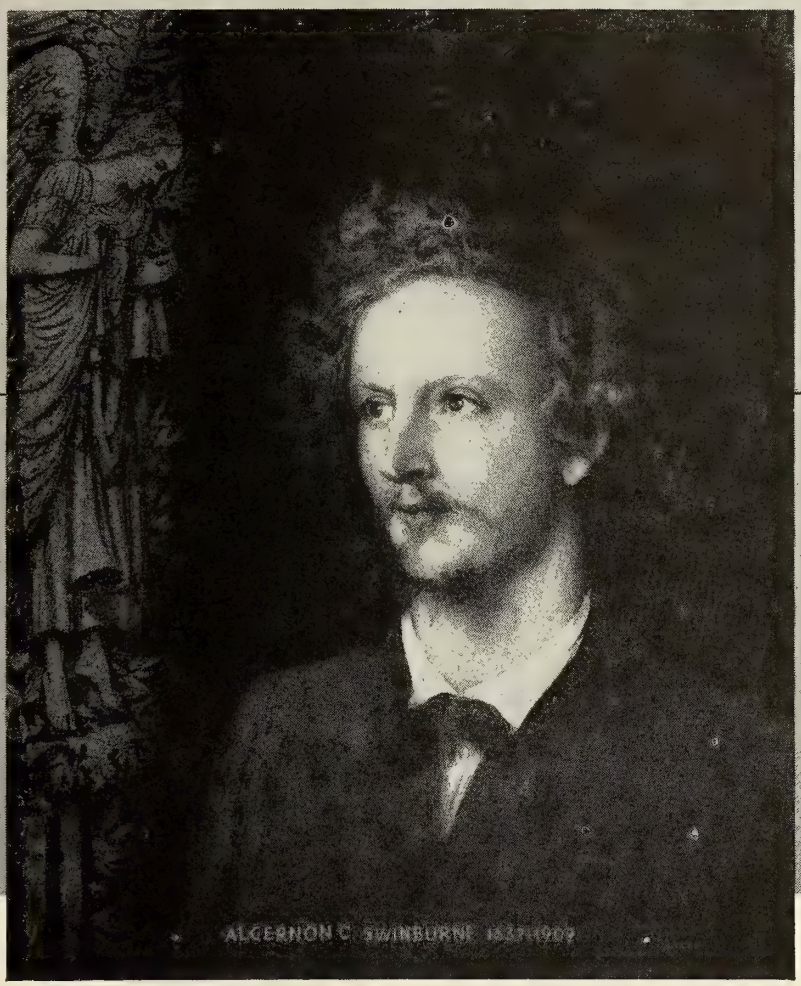
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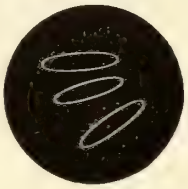
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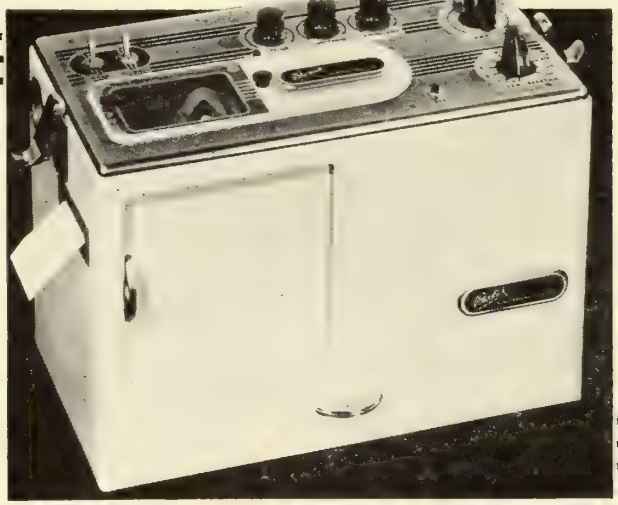
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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

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THE DIAGNOSIS OF PATENT FORAMEN OVALE IN CASES OF CONGENITAL PULMONARY STENOSIS, INCLUDING ONE CASE OF LEVOCARDIA

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SIGMUND A. BRAHMS, M. D.†
FREDERICK H. KING, M. D.

MOST instances of congenital pulmonary stenosis are associated with other defects, particularly those which comprise the tetralogy of Fallot, namely, interventricular septal defect, dextroposition of the aorta, and hypertrophy of the right ventricle. Pulmonary stenosis with intact interventricular septum, often designated "pure" or "isolated" pulmonary stenosis, occurs less frequently than the tetralogy, but is not rare. In Abbott's series of one thousand cases of congenital heart disease[1, 2], there were 85 cases of pulmonary stenosis associated with a defect in the interventricular septum and 25 cases of pulmonary stenosis with an intact interventricular septum.

A fact not generally appreciated is that a large percentage of cases of pulmonary stenosis with intact interventricular septum is associated with patent foramen ovale. Of Abbott's 25 cases of pulmonary stenosis with closed interventricular septum, 16 were in this group. In a similar series of 11 cases reported by Currens, Kinney, and White[3], 6 had a patent foramen ovale. There are other recent reports of such cases.[4, 5, 8, 9]

In the literature[3, 4] cases of pulmonary stenosis with intact interventricular septum are often called "isolated" or "pure" pulmonary stenosis, regardless of whether the foramen ovale is patent or not. The latter is not only significant from the physiological but also from the therapeutic point of view because cases of pulmonary stenosis with intracardiac shunt resulting in cyanosis may be amenable to amelioration by the Blalock[6] or Potts[7] procedures, whereas cases of truly isolated pulmonary stenosis are at present not thus remediable. The recent articles of Seltzer, et al.[8] Allenby and Campbell[9], and Burchell and Wood[20] have served to clarify the clinical significance of a patent foramen ovale in conjunction with pulmonary stenosis.

The diagnosis of these cases is further complicated by the fact that the tetralogy of Fallot also is frequently accompanied by a patent foramen ovale. Of Abbott's 85 cases of pulmonary stenosis with interventricular septal defect, 34 were in this group. Cournand[10] also has found by cardiac catheterization that a physiologically significant interatrial septal defect not infrequently complicated the tetralogy. However, when an interatrial septal defect and pulmonary stenosis are present, the presence, in addition, of an interventricular septal defect or overriding aorta can be determined only when the cardiac catheter passes from the right ventricle into the aorta or when the right ventricular blood has a significantly higher oxygen content than the right atrial blood.[11]

Recently we studied three patients with pulmonary stenosis and interatrial septal defect by means of angiocardiography[12] and cardiac catheterization[13], in addition to the usual clinical procedures. In one case the diagnosis was confirmed by autopsy. In the last two cases, the difficulty in excluding an over-riding aorta is emphasized. Finally, the last case is one of the few

From the Cardiovascular Research Group, The Mount Sinai Hospital, New York City.
These studies were aided by grants from the Linde Air Products, Isaac Scrneierson Foundation, and the Dazian Foundation for Medical Research.
† Fellow of the Dazian Foundation for Medical Research.
* Now of Phoenix, Arizona.

cases of levocardia in which the diagnosis has been established during life.

CASE I

V. B., a 2-year-old girl, was admitted to the hospital January 7, 1948, because of increasing cyanosis during the previous six months. At the age of one month, the infant choked during her feedings. She was considered to have an enlarged thymus and radiotherapy was administered with relief of symptoms. At the age of 12 months, a cardiac murmur was heard, but no cyanosis was evident. She had an attack of "croup" at this time. At the age of 17 months, cyanosis and easy fatigability were noted. At the age of 20 months pronounced cyanosis of the fingers and toes was present.

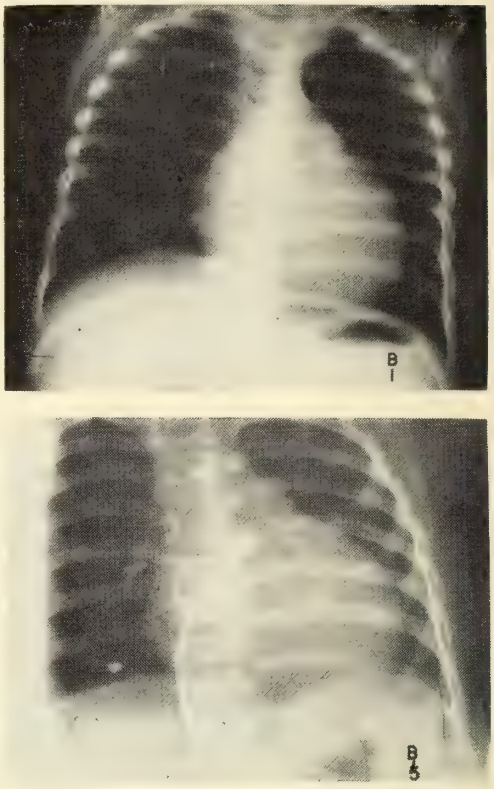
Physical examination showed an underdeveloped infant with deep cyanosis of the lips, fingers and toes, and clubbing of the fingers and toes. The precordium bulged at the left of the lower sternum. No thrill was palpable. A long, loud, harsh systolic murmur, heard over the entire precordium, was loudest to the left of the manubrium. The second pulmonary sound was louder than the aortic. An auricular sound was heard. Blood pressure was 104/72 in the right arm and 98/78 on the left. The peripheral pulses were of good amplitude.

The electrocardiogram revealed right axis deviation and inversion of T-2 and T-3. The precordial and unipolar limb leads were indicative of right ventricular hypertrophy. The phonocardiogram confirmed the presence of a long systolic murmur, with more high than low frequencies, to the left of the manubrium.

Fluoroscopy showed the heart to be enlarged towards the left due to right ventricular enlargement. The main pulmonary artery and the hilar branches were small (Fig. 1). The aortic knob was normal. There was no deviation of the barium filled esophagus.

Cardiac catheterization and angiocardiography were performed on January 14th, 1948. Under sodium pentobarbital-avertin anesthesia, the right saphenous vein was isolated, and the catheter passed easily up the inferior vena cava through the right atrium into the right ventricle. At the region of the pulmonary valve, however, the catheter met with an obstruction and could not be passed into the pulmonary artery. Attempts to aspirate blood through the catheter in this position were unsuccessful. Slight withdrawal of the catheter enabled the operator to aspirate blood from the outflow tract of the right ventricle. Blood was later taken from a ventricular site closer to the tricuspid valve. The catheter tip was withdrawn into the right atrium and again advanced. It was again observed to move towards the left but at a more cephalad level than previously when the right ventricle was entered. The tip of the catheter reached the left cardiac border below the prominence of the pulmonary artery (Fig. I) and then curved caudally along this border for a short distance beyond which it could not be manipulated. The opinion was that the left atrium had been entered through a defect in the interatrial septum. This was confirmed by the oxygen determinations on the blood samples (Table I, Column 1) and by the angiocardiogram. A sample of blood obtained from the right femoral artery on the folloiwng day (Table I, Column 1) showed only 57% saturation with oxygen.

Figure I. Case I.



Upper—conventional postero-anterior view.

Lower—tip of catheter in left atrium having passed through an interatrial septal defect (oxygen content in left atrium 12.4 volumes per cent, in right atrium 8.5 volumes per cent.

Angiocardiography (Fig. II) demonstrated diodrast in the left atrium simultaneously with initial visualization of the right atrium. Only two cardiac systoles occurred between the latter and opacification of the aorta. The right ventricle was dilated as was the pulmonary artery, It was impossible to determine if diodrast had reached the aorta by traversing the left atrium and the left ventricle or from the right ventricle by way of an overriding aorta.

The child finally lapsed into coma and died, apparently from anoxia on January 23, 1948.

At post mortem examination the heart was found to be at least double the expected weight.

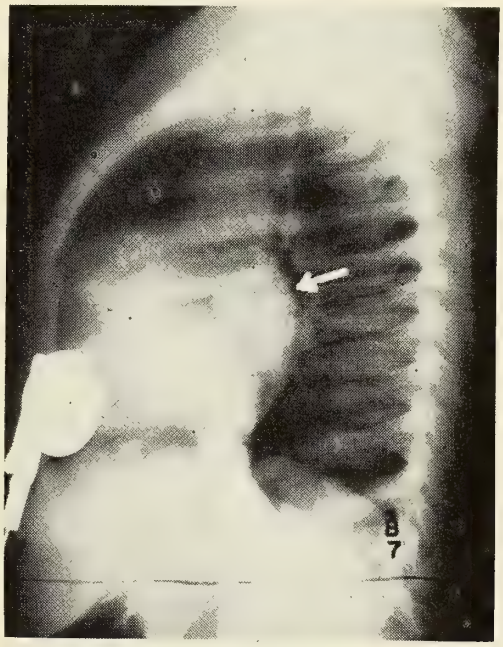
TABLE I
OXYGEN CONTENT AND SATURATION OF BLOOD OBTAINED BY CARDIAC CATHETERIZATION

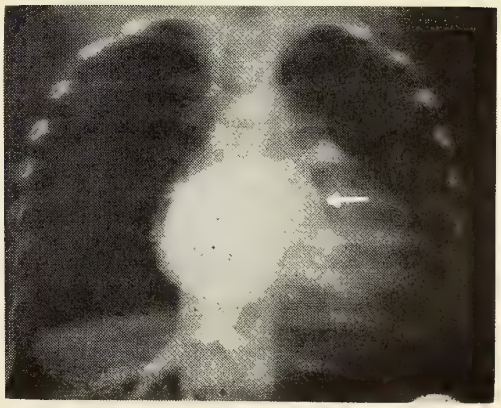
	CASE I		CASE II		CASE III	
	0_2 Content Volume %	% Satn.	0_2 Content Volumes %	% Satn.	0_2 Content Volumes %	% Satn.
Superior Vena Cava	——	—	10.1	58	7.2	40
Inferior Vena Cava	9.2	49	——	—	——	—
Right Auricle	8.2	43	——	—	7.0	
					4.8**	27**
Right Ventricle	8.8	47	8.7	50	6.4	36
	8.5	45			(1.1)***	(6)***
Left Auricle	12.4	66	16.9	98	——	—
Pulmonary Vein	——	—	17.1	99	——	—
Brachial or Femoral Artery	10.8*	57*	15.7	91	11.4	64

* Arterial blood drawn on day after catheterization.
** This was the sample in which an abrupt color change was visible while it was being withdrawn.
*** Probably coronary sinus.

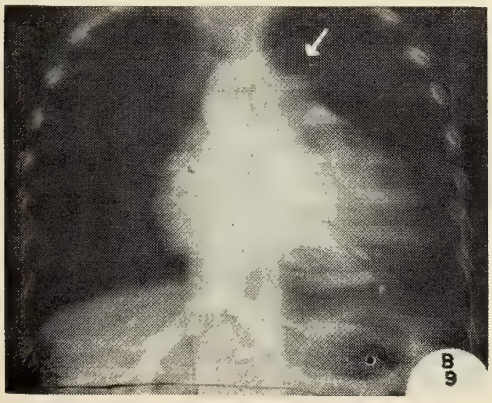
It was enclosed in a well developed pericardial sac, with no increase in pericardial fluid. The inferior and superior venae cavae were dilated. The right atrium and its appendage were greatly dilated and hypertrophied. The thickness of the right ventricle was 0.6 cm. The tricuspid valve was very large but well formed, and had a circumference at its base of 4. cms. The pulmonary valve was an almost solid membrane, 1.2 cm. in diameter, whose cusps were completely fused except for an ostium 2 mm. in diameter at the center of the membrane. This constituted the only intracardiac orifice through which blood could pass from the heart to the lungs. The pulmonary artery and its branches were thin and considerably dilated above the valve. The completely obliterated ductus arteriosus was in its usual situation about 3 cm. above the ventricles. The pulmonary veins were not dilated and emptied into a small left atrium. The mitral valve was well formed and had a circumference of 4 cm. The left ventricle was hypertrophied with a muscle thickness of 0.5 cm. A patent foramen ovale measured 1 cm. in diameter. The aortic valve was not unusual. The aorta itself was well formed and of uniform caliber though somewhat dilated. The coronary arteries orig-

Figure II. Case I.





Upper—left oblique angiocardiogram, showing simultaneous visualization of the atria and aorta. The arrow points to the left atrium.
Lower—postero-anterior angiocardiograms. The arrow on the right indicates diodrast in the left atrium visualized simultaneously with the right atrium. The arrow on the left points to dilated pulmonary artery.



inated at the usual locations and were normal in size. The lumina of the bronchial and intercostal arteries were not more than 1 mm. in diameter. The ribs showed no notching. The azygos vein was 3 mm. in diameter and was distended with blood. Pronounced endocardial fibrosis was found in the outflow tracts of both ventricles and in the right atrium. The lungs showed areas of focal congestion.

There was superficial infection in the operative wound. The inferior vena cava and its tributaries from the right thigh were carefully exposed and explored to and below the site of previous surgical exposure of the saphenous system. No thrombi were found and blood could be expressed freely from the iliac and femoral veins. No evidence of thrombophlebitis or abscess was found.

COMMENT

This case is a classical example of the valvular type of pulmonary stenosis with patent foramen ovale. There were no other defects. A noteworthy feature was the acyanotic period early in life followed by the appearance of, and fairly rapid increase in, cyanosis. The diagnosis of an interatrial septal defect was established during life, first, by the passage of the catheter from the right atrium into what was interpreted to be the left atrium; second, by the finding that the blood oxygen content in the latter region was higher than in the right atrium; and, third, by the angiocardiographic demonstration that the area reached by the catheter was indeed the left atrium which was visualized directly after diodrast was recognized in the right atrium and before the pulmonary vessels were opacified.

The low blood oxygen saturation in the left atrium (66%), though higher than that in the right atrium, also suggested interatrial right-to-left shunt and consequent admixture of venous and arterial blood in the left atrium since there was no reason to suspect incomplete oxygenation in the lungs. How completely oxygenation occurred in the lungs was not investigated during life, but at the post mortem examination there was no microscopic evidence of pulmonary vascular disease. It is doubtful that the areas of focal congestion in the lungs were sufficiently extensive to have caused the high degree of unsaturation of the left atrial blood.

In this connection, patient No. 8 of Brannon, Weens, and Warren[14] is of interest. In their patient, a 39-year-old man, who had developed cyanosis and polycythemia, the presence of an interatrial septal defect was established when cardiac catheterization showed the blood oxygen content in the right atrium (12.4 Volumes per cent) to be considerably higher than that in the superior vena cava (7.9 volumes per cent). Arterial oxygen saturation was only 67 per cent. The observations that oxygen inhalation increased the saturation to 88 per cent and that some of the pulmonary branches showed a "moderately increased pulsation, whereas others had practically no pulsatory volume changes," led them to postulate the coexistence of intrapulmonary vascular disease. Post mortem examination confirmed their conclusions.[15] This case illustrates how increased blood flow to the lungs may lead to secondary pulmonary changes. That decreased blood flow may also lead to alterations in the pulmonary vessels has recently been shown by Rich[16] who found intravascular thrombi in cases of tetralogy.

The dilatation of the pulmonary artery, demonstrated by angiocardiography, is interesting since it is likely that the pulmonary artery pressure was low. The latter is suggested by the absence of forceful pulsation during fluoroscopy and by the autopsy findings. Post-stenotic dilatation of the pulmonary artery apparently is the rule in cases of "isolated" pulmonary stenosis.

Early visualization of the aorta, approximately simultaneously with the pulmonary artery ordinarily indicates an overriding aorta and interventricular septal defect. However, similar early visualization of the aorta will occur when diodrast passes through an interatrial septal defect into the left atrium, and from there, through the left ventricle to the aorta. Any slight difference in the transit time that might occur is not likely to be recognized because even the recently improved angiocardiographic method[12] is not precise enough to detect slight variations. This difficulty also arose in connection with case III. Indeed it is resolved conclusively only if the catheter is seen to enter the aorta from the right ventricle.

In Eisenmenger's complex, where dilatation of the pulmonary artery coexists with dextroposition of the aorta, the demonstration of at least adequate blood flow through the lungs (normal or increased pulsations in the hilar vessels, increased pressure in the pulmonary artery, the absence of pulmonary stenosis) serves to differentiate this condition from cases in which pulmonary stenosis is present.

Finally, when the oxygen content of blood

from the right ventricle is not significantly higher than the blood from the right atrium, as occurred in this case, it is unlikely that an interventricular defect and the tetralogy are present since according to Bing,[11] a significant oxygen difference is usually found in the tetralogy of Fallot.

CASE II.

S. F., a 3½-year-old boy, was admitted to the hospital on April 19, 1948, for investigation because of a heart murmur. The murmur first had been heard at the age of 10 days. He had never been cyanotic. He led a full and active life with no symptoms, except that he became a "little winded" on exertion.

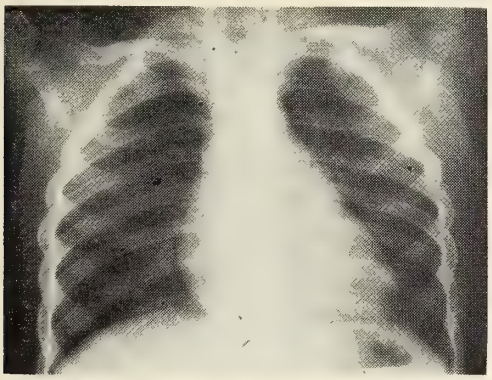
Physical examination showed him to be well developed and well nourished. Clubbing and cyanosis were absent, as were signs of congestive heart failure. The point of maximal impulse of the heart was in the fifth intercostal space at the mid-clavicular line. A very loud, rough systolic murmur was heard all over the precordium and posteriorly throughout the chest. It was maximal in the pulmonary area. A systolic thrill was present over the precordium and over the carotid arteries. Blood pressure was 130/80 in the left arm, 140/110 in the left leg. The hemoglobin was 12.5 grams per 100 c.c. of blood.

The electrocardiogram showed right axis deviation in the standard leads. The unipolar limb leads and the precordial leads were indicative of right ventricular preponderance. The phonocardiogram confirmed the holosystolic murmur to be maximal at the pulmonary area with transmission to the left subclavicular area. The carotid pulse tracing showed a few systolic vibrations late in the flow phase, corresponding in time to the thrill. The radial and femoral pulses were simultaneous in their onset.

Fluoroscopy revealed the heart to be of normal size. (Fig. III, 1.) The pulmonary artery segment and the secondary branches of the pulmonary artery were normal in appearance, but in the teleoroentgenogram the pulmonary artery appeared prominent. There was no definite evidence of right ventricular enlargement. The barium-filled esophagus was not displaced.

Cardiac catheterization and angiocardiography were performed on April 21, 1948 under sodium pentobarbital-avertin anesthesia. Through the right saphenous vein, the catheter was passed into the right ventricle but it could not be passed into the pulmonary artery. It was then withdrawn into the right atrium and directed for-

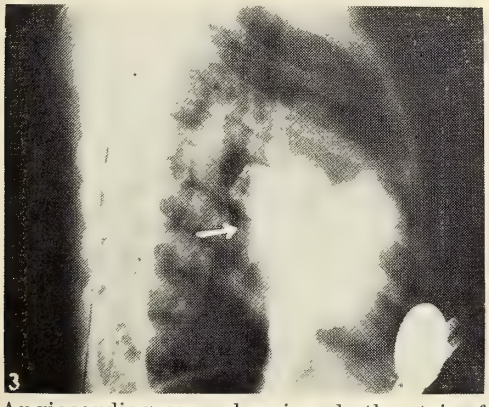
Figure III. Case II.



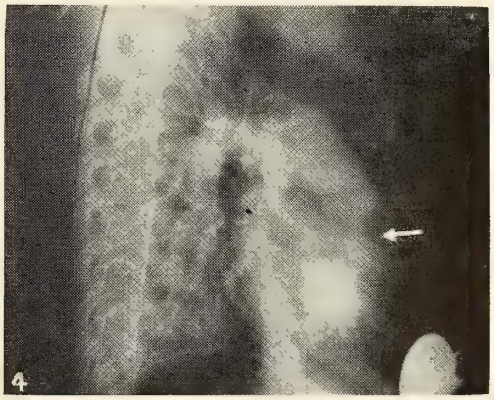
1. Conventional postero-anterior view.



2. Catheter in the left pulmonary vein.



3. Angiocardiogram, showing both atria filled with diodrast. The arrow points to the left atrium.



4. Angiocardiogram, showing visualization of the right ventricle and pulmonary artery. The arrow points to the narrowed outflow tract of the right ventricle.

ward again. It progressed across the cardiac shadow to the left and the tip of the catheter was seen to project outside the left cardiac border into the left pulmonary field. The interpretation was that the catheter had traversed a defect in the interatrial septum, and after crossing the left atrium had entered a pulmonary vein. This was confirmed by the results of the oxygen studies (Table I, Column II) and by angiocardiogram.

The angiocardiogram (Fig. III, 3 and 4) revealed narrowing of the outflow tract of the right ventricle below the pulmonary valve. The pulmonary artery was slightly dilated. An interatrial septal defect was indicated by early visualization of the left atrium.

COMMENT

Although the anatomical diagnosis in this case was the same as that in Case I, but with infravalvular stenosis, the clinical contrast between them was striking. Indeed the two cases may be considered to represent opposite extremes in severity. The pulmonary stenosis in Case II was functionally so mild that the right atrial and ventricular pressures caused no cyanosis and minimal right-to-left intracardiac shunt. It is unfortunate that facilities for satisfactory pressure recordings during catheterization were not available when this patient was examined. Pressure readings may be important since, as Burchell and Wood[20] point out, in this condition the right ventricular systolic pressure is likely to be elevated and may greatly exceed a simultaneously-determined systemic arterial systolic pressure. The presence of a right-to-left shunt was established in this case, despite the absence of cyanosis, by the finding that the blood oxygen content and saturation were lower in the femoral artery than in the left atrium and pulmonary vein. The difference, though relatively small, was significant. Furthermore, the absence of any significant left-to-right shunt was evident from the fact that the right ventricular blood oxygen content was not higher than the caval. (Unfortunately, the right atrial sample clotted.) The presence of an interatrial septal defect was established according to the criteria as in Case I. Subvalvular pulmonary stenosis was clearly evident on the angiocardiogram.

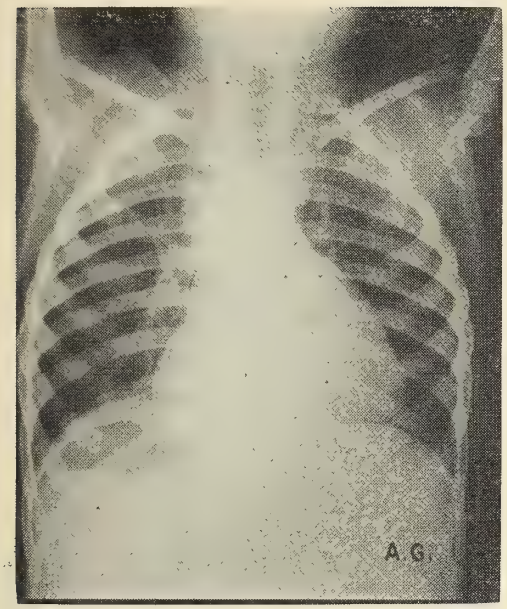
The presence of a palpable thrill over the carotid arteries is worth emphasis. Apparently, in pulmonary stenosis, a murmur and thrill may be transmitted to the neck in the absence of the left ventricular outflow obstruction usually associated with this transmission.

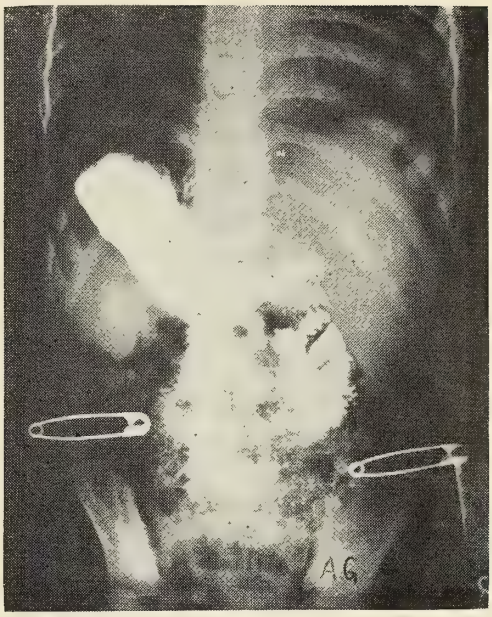
CASE III

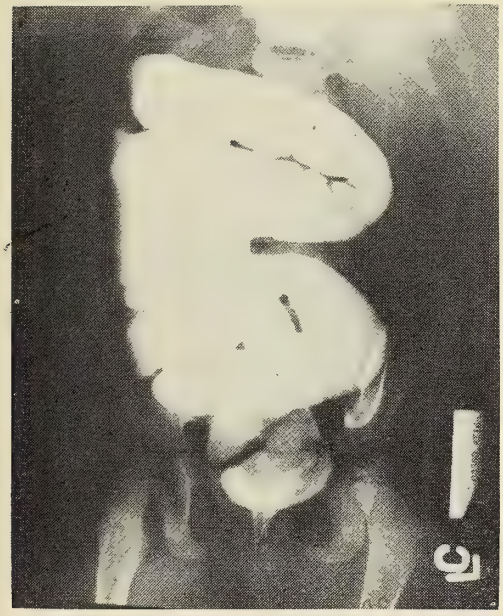
A. G., a 3-year-old girl of Italian extraction, was admitted to the hospital on June 14, 1949. Her mother had "rheumatic heart disease" since the age of 13. The child had been cyanotic since birth, developed clubbing early, and had moderate exertional dyspnea. Her physical and mental development were normal, but she had never run. Examination showed her to be cyanotic, in no distress at rest. Clubbing of the fingers and toes was present. The cervical veins were not distended. The lungs were clear. The apex impulse of the heart was palpable in the 4th left interspace within the nipple line. Percussion demonstrated slight enlargement of the heart to the right and left. A grade III systolic murmur was heard best in the 3rd interspace to the left of the sternum, transmitted to the apex and base. The second aortic sound was louder than the second pulmonic sound, which was faint. The blood pressure was 140/80. The spleen was palpable beneath the right costal margin. Blood count showed a hemoglobin of 18 grams per cu. mm., an erythrocyte count of 7.8 million, and an hematocrit of 71 per cent. With the patient crying, blood obtained from a femoral artery showed an oxygen content of 12.0 volumes per cent, an oxygen capacity of 21.4 volumes per cent, and a percentage saturation of 57.1 per cent. Electrocardiogram showed a sinus tachycardia of 190 per minute; marked right axis deviation; high, wide, notched P waves; and QRS complexes of high voltage. The P and T waves were upright in Lead I. Conventional postero-anterior roentgenograms of the chest showed the cardiac shadow to be enlarged especially towards the left (Fig. 4). The aortic shadow was seen to the right of the mid-line and a vascular shadow was present in the paramediastinal region on the left side extending to the root of the neck. A curved prominence high on the left border of the heart was interpreted as a dilated left auricular appendage. The gastric air bubble was seen just below the right diaphragm and a homogeneous density presumably that of liver was present below the left. The pulmonary vascular markings as seen in the postero-anterior projection were not distinctly abnormal in appearance. However, in the oblique projections the main pulmonary vessels and the hila were diminished in size.

Angiocardiogram carried out through the right upper extremity showed the right superior vena cava to be normal in caliber (Fig. 5). Its upper half was displaced laterally and its lower portion coursed obliquely to the left to enter the right atrium considerably to the left of the normal position. The inferior vena cava entered the heart to the left of the mid-line. The hepatic venous circulation was well delineated and appeared to terminate in a large vessel, as wide as the inferior vena cava. One-half second after

Figure IV. Case III.







Upper left: Conventional postero-anterior roentgenogram showing increased width of the superior mediastinum to left and right; prominent right atrium and a prominent curve of the left upper cardiac contour. Note the stomach bubble on the right.

Upper right: Shows the stomach to be in a mirror-image position.

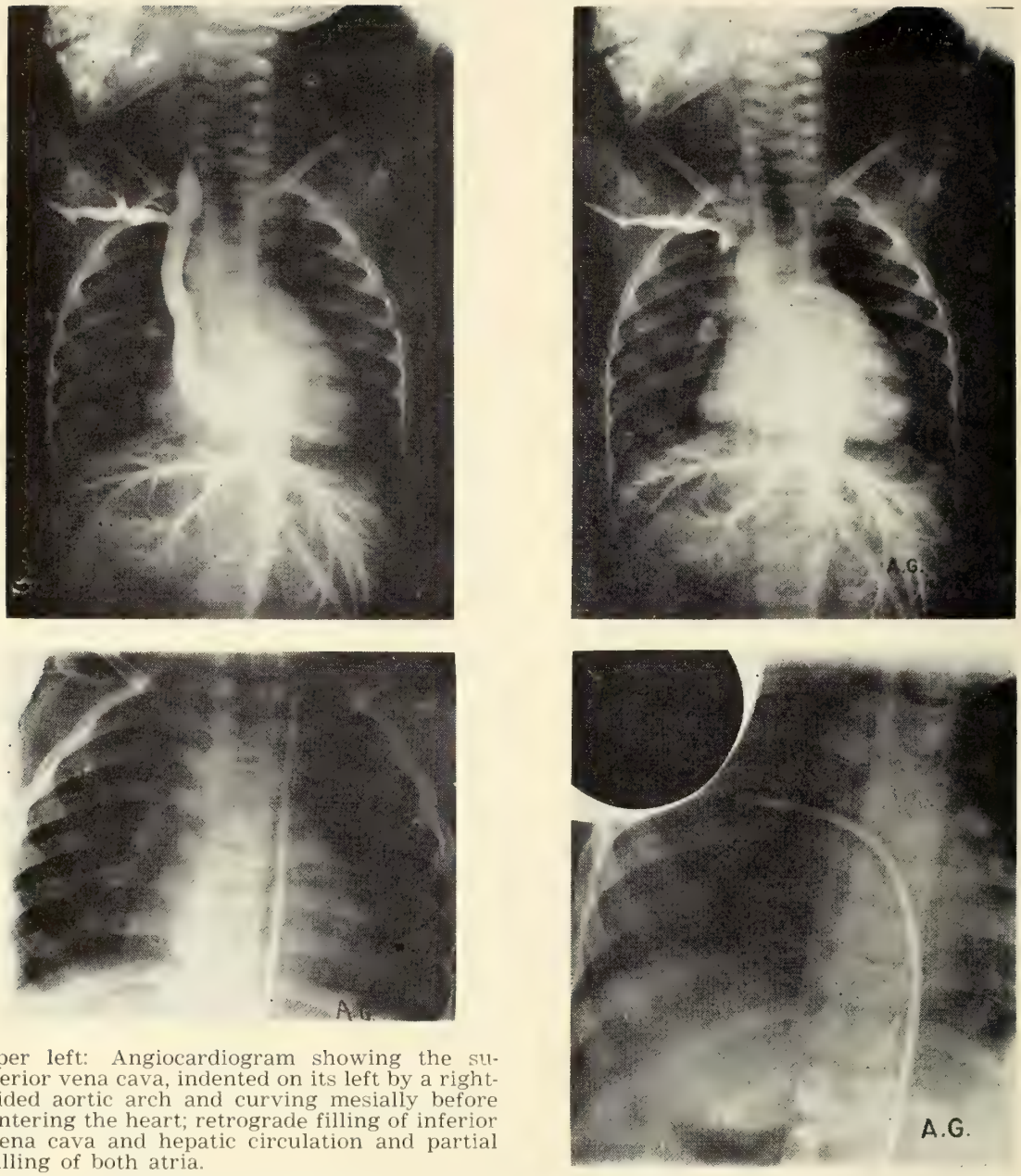
Lower: Barium enema demonstrating most of the large bowel on the right.

the initial appearance of diodrast in the right atrium, with the heart rate at 150 per minute, diodrast was present in small quantity in the left atrium and left ventricle as evidenced by faint mottling in the region of these chambers. Immediately following, the left atrium and its appendage were outlined in the usual position and the latter corresponded to the prominence seen in the upper part of the left cardiac border. The aorta arose in part at least from the right ventricle and the arch was seen to be on the right side. The main pulmonary artery was not visualized as such but the right and left branches appeared small. The aorta descended on the right side in the thorax and in the abdomen was still on the right side as far as the 2nd lumbar vertebra. There was a left innominate artery and possibly another innominate on the right.

Barium meal examination showed the esophagus to traverse the thorax slightly to the left of the mid-line. At D-11 it crossed over to the right where it entered the stomach. The antrum pointed toward the left side and the duodenal bulb was on the left. The liver was identified on the left and the spleen on the right. Barium enema was not entirely satisfactory but demonstrated the sigmoid and the descending colon to be to the right of the mid-line. Only a portion of the transverse colon extended to the left of the mid-line. The cecum, however, appeared to be in the right lower quadrant.

On June 29, cardiac catheterization was performed through the right saphenous vein. The catheter entered the heart through an inferior vena cava to the left of the mid-line, confirming the angiocardiographic demonstration. The right atrium, left atrium, and a right pulmonary vein then entered in this order. The catheter also entered a vessel which extended superiorly to the left of the mid-line, evidently a left superior vena cava. The catheter could not be passed into the ventricles or pulmonary artery. The pressures and oxygen contents of the blood from the various locations were as follows:

Figure V. Case III.



Upper left: Angiocardiogram showing the superior vena cava, indented on its left by a right-sided aortic arch and curving mesially before entering the heart; retrograde filling of inferior vena cava and hepatic circulation and partial filling of both atria.

Upper right: Succeeding angiocardiogram showing opacification of the left auricular appendage and right-sided aortic arch.

Lower left: Catheter in left superior vena cava.

Lower right: Catheter in a right pulmonary vein.

	O_2 content vols. %	mean pressure	pulse pressure
Left superior vena cava	12.1	0	—
Inferior vena cava	14.2	0	—
Right atrium	13.2	—2	2
	12.5		
Left atrium	13.1	—2 to +2	4
Right pulmonary vein	22.5		
	19.5	4	—

COMMENT

This case is an example of so-called levocardia, i. e. situs inversus of the abdominal viscera with the heart in its normal left-sided position. It is the mirror image of isolated dextrocardia. Recently, Forgacs[17] and Donzlet, et al.[18] have presented cases of levocardia diagnosed clinically and have reviewed the literature. Forgacs has pointed out that, in contrast to complete situs inversus, the heart is invariably abnormal in this condition and the structural defects are apt to be complex. In the majority of instances, trans-

position of the atria, a common atrium, or a large interatrial communication, but especially the first named anomaly, was present in addition to other abnormalities. In our case, the venae cavae were shown to enter the heart to the left of the normal position, but still apparently into the right atrium. A huge interatrial septal defect may be postulated because of the low oxygen saturation of the blood in the left atrium. There must have been some separation of the two atria, however, since the pressure was shown to be distinctly greater on the left than on the right. The failure to visualize the main pulmonary artery on angiocardiography indicates a probable pulmonary stenosis. The early visualization of the aorta may have occurred as a result of the mixing of the venous and oxygenated blood in the atria or may indicate in this case, in addition, an overriding aorta and interventricular septal defect. The fact that the aorta is right-sided and displaced to the right favors the latter possibility.

DISCUSSION

In the literature, the term "isolated" or "pure" pulmonary stenosis is often used indiscriminately to include all cases in which there is an intact interventricular septum. It is apparent, however, that cases in which pulmonary stenosis is the only lesion differ physiologically from those in which there is, in addition, intracardiac shunt through an interatrial septal defect. Clinically, these two conditions are similar in some respects but differ greatly in others. Following are some of the clinical findings[3, 4, 5]:—

1. The murmur in both groups is apt to be best heard higher along the left sternal border and appears to originate "closer to the ear" than in the tetralogy of Fallot.

2. When "pure" pulmonary stenosis is present, i. e. when it is complicated by *no* other lesions, the oxygen saturation of the arterial blood is normal. Cyanosis, when present is usually mild and is a late development. It may become severe preterminally due to right-sided congestive heart failure. Dyspnea is frequently out of proportion to the cyanosis.[19] When pulmonary stenosis is complicated by a significantly patent foramen ovale, cyanosis ultimately becomes severe and is accompanied by reduced arterial oxygen saturation resulting from right-to-left shunt and, possibly, associated pulmonary vessel changes.[8, 9] Characteristically, however, it does not appear until some time after birth. Taussig believes that patency of the ductus arteriosus accounts for the absence of cyanosis at least in the first month of life. Many infants succumb within the first two years of life, a few months after the first appearance of cyanosis. On the other hand ,many patients live to adult life and the progression of cyanosis and polycythemia extends over years. These differences are in all probability related to the degree of pulmonary stenosis.[4]

3. In infants, enlargement of the heart to the right is more evident in pulmonary stenosis with intact interventricular septum than in the tetralogy, in which the heart may be normal in size for many years.

4. The pulmonary artery is frequently normal in size or dilated with "isolated" pulmonary stenosis but this is not common in conjunction with the tetralogy.[8, 9]

5. A "right ventricular strain" pattern on the electrocardiogram, as opposed to simple right axis deviation, favors "isolated" pulmonary stenosis over the tetralogy of Fallot.[5]

The presence of an intracardiac shunt may be suspected in the presence of one or more of the following: reduced oxygen saturation of the arterial blood, reduction in the saturation of arterial blood with exercise, very short saccharin or calcium gluconate circulation time, and paresthesias in the extremities during the determination of the ether circulation time.

Despite the presence of several of the above findings the clinical diagnosis of pulmonary stenosis with or without an intracardiac shunt, may be difficult and differentiation from the tetralogy of Fallot, Eisenmenger's complex or other lesions may require cardiac catheterization and angiocardiography. Catheterization will support this diagnosis if the pulmonary artery can be catheterized. A lower pressure in the pulmonary artery than in the right ventricle will be found. If the catheter cannot be passed into the pulmonary artery after its tip has been directed into the outflow tract of the right ventricle, a high degree of stenosis may be present. However, as is well known, attempts at pulmonary artery catheterization may be unsuccessful where there is no reason to suspect stenosis.

Infundibular stenosis is usually associated with the tetralogy and is rare in conjunction with an intact interventricular septum. In the latter, the stenosis is usually valvular. Oppor-

tunity to correlate the angiocardiographic visualization of the outflow tract of the right ventricle with post-mortem appearance has been too infrequent to say that angiocardiography unequivocally permits the differentiation of pulmonary valvular from subvalvular stenosis.

Early visualization of the left atrium in the angiocardiogram strongly suggests the presence of interatrial septal defect. This finding was present in the cases being reported. Early opacification of the left atrium is unusual in cases of uncomplicated interatrial septal defect. Cardiac catheterization offers unequivocal evidence if the catheter tip enters the left atrium as in Cases I and II and the oxygen content of the blood sample from this area if found to be higher than in the samples obtained from the right atrium. If blood in the left atrium or in a peripheral artery is found to have a lower oxygen content than in the pulmonary vein, or is less than 95 per cent saturated with oxygen, a right-to-left shunt will be proven if no intrapulmonary disease is present.

It is not within the scope of this report to discuss in detail the indications for the recently devised operations to increase blood flow to the lungs.[6, 7] In this connection, however, we wish to emphasize the necessity for distinguishing between pure pulmonary stenosis and pulmonary stenosis with patent foramen ovale. Taussig[4] has pointed out that "it is doubtful whether the operation (Blalock's) will be of value in pure pulmonic stenosis because even though the obstruction at the pulmonary orifice were circumvented, there would still be difficulty in the expulsion of blood from the right ventricle and only oxygenated blood would be directed to the lungs." However, when pulmonary stenosis is associated with a physiologically significant patent foramen ovale, despite the presence of an intact interventricular septum, the following criteria for the operation[11] will in many instances be satisfied:

1. Presence of an interatrial or interventricular septal defect.

2. Obstruction to flow in the pulmonary artery resulting in a mean blood pressure in the pulmonary artery which is less than that in the aorta and its branches.

3. Oxygen saturation of peripheral arterial blood less than 88 per cent.

It remains, of course, to be determined by further experience whether or not the operation will be as successful in cases of the type described in this paper as it has in the tetralogy of Fallot.

SUMMARY

1. Three cases of pulmonary stenosis and interatrial septal defect, one proven at autopsy and one complicating levocardia, are presented.

2. The value of angiocardiography and cardiac catheterization in the differential diagnosis of this combination of lesions is discussed.

3. The practical need of differentiating pure pulmonary stenosis from pulmonary stenosis with physiologically patent foramen ovale, both with intact interventricular septum, is emphasized particularly with regard to possible surgical amelioration.

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DIBUTOLINE - A USEFUL ANTISPASMODIC

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PAIN associated with smooth muscle spasm from whatever cause, has always been a source of distress to both the patient and the doctor. This is evidenced by the myriad of antispasmodic drugs and various types of sedatives that have flooded the market in recent years. Biliary colic, ureteral colic, spasm and pain caused by duodenitis or duodenal ulcer, and by far the most common source of distress, the garden variety of spastic colon, has led many investigators into the field of research pertaining to the relief of painful spasm.

In recent months we have had an opportunity to work with a new type of antispasmodic drug that has been reported in literature since 1943.[2, 3, 4, 5, 6] It was first mentioned as being an effective cycloplegic and midriatic agent, but in 1945 it was reported as being of help in the treatment of smooth muscle spasm.[7, 8] The name of the drug is dibutoline (dibutyl urethane of dimethyl ethyl-B-hydroxy ethyl ammonium sulfate, Merck and Company, Inc.). In our experience, this drug has proven to be a useful adjunct in the treatment of a source of pain associated with smooth muscle spasm, especially in cases where other antispasmodic drugs have not been satisfactory.

Pharmacology

Spasm of smooth musculature is caused by stimulation of post-ganglionic, cholinergic nerve fibers that innervate the individual muscle groups. Such spasm can be initiated by a mechanical or a chemical irritation, infection, or by psychic tension as seen in mental distress or worry. Pain is a direct result of this spasm. Dibutoline acts as a blocking agent and inhibits the structures that are innervated by these nerve fibers and thus spasm is prevented.[7, 8] It blocks the usual response of the cells and, therefore, it relaxes the iris constrictor in the ciliary muscle, inhibits the sub-maxillary gland, and relaxes smooth muscles in the arterioles and the gastro-intestinal, biliary, and urinary tracts.[7, 8, 9] Moreover, dibutoline exerts a direct inhibitory action on non-striated musculature as shown by its action on isolated animal intestines.[8] The site of the action is directly on the effector cells and not on the nerve endings. In this way it acts similar to atropine. In comparing dibutoline with atropine, it is found that the effect of dibutoline lasts a relatively shorter time than does the effect of atropine, but prolonged efftcts without toxicity are obtained with higher dosages. Moreover, it has been found that the effects of dibutoline occur more quickly than those of atropine and a more intense action is effected. In addition, the side effects, such as pupil dilatation and mouth dryness, are less severe.[8, 9, 10, 11, 12]

Toxicity

Animal experimentation has shown that the drug has a remarkably low toxicity. It was shown that when dibutoline was given intravenously, experimentally in large doses, there was a transitory decrease in blood pressure and a slight drop in the pulse rate, but cardiac irregularities were absent.[8] There was no influence either on the amplitude or the rate of respirations with ordinary doses; however, massive doses given intravenously did cause some slight increase in respiratory rate. It was observed that the amounts of dibutoline that was required to obtain a response from the cardiovascular system were of a higher order than those which were effective upon gastro-intestinal musculature. Thus, it was shown that 1000 times the minimal effective dosage, for inhibiting intestinal motility and tone, may be given without causing serious or dangerous side effects in animals.[7, 8, 9]

In our experience only two patients showed evidences of circulatory effect. One was a young woman who had had gastro-intestinal bleeding from a duodenal ulcer. She was weak from loss of blood and in a state of semi-shock when first seen. She was suffering from a great deal of abdominal cramping and pain that had not been relieved by atropine or demerol. Consequently, an initial dosage of 10 mg. of dibutoline was administered subcutaneously. Approximately two minutes after the injection the patient became extremely pale and there was a drop in her blood pressure and an increase in her pulse rate which in turn became weak and

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thready. The patient remained in a state of circulatory collapse for approximately two to three minutes, but recovered fully following the administration of three minims of adrenalin.

The other patient was an elderly woman who had received dibutoline prior to barium enema studies in order to relieve the spasm of the lower bowel. Approximately one to two minutes following the subcutaneous injection of 10 mg. of dibutoline, the patient exhibited a state of circulatory collapse but recovered within three to five minutes. It was assumed that dibutoline was the causative factor in each case. No permanent effects were noted in either patient. The chief side effects noticed during the administration of this drug are dryness of the mouth and dilation of the pupils with defective visual accommodation in some patients. However, we have found that with the reduction of the dosage from 10 mg. to 5 mg. the side effects have been minimal.

Administration and Dosage

As an antispasmodic, dibutoline may be injected intramuscularly or subcutaneously. The usual subcutaneous dose for adults is 10 mg. or 1 c.c. If no relief is obtained in 15 to 20 minutes, the 10 mg. dosage may be repeated. The drug appears to be ineffective when given by mouth.[11, 12] Intravenous administrations have been avoided, in view of the fact that circulatory collaspe has been reported in animals when it is given in this manner. Because of the low toxicity of the drug, the physician has considerable latitude in determining the dosage for his patient, and the individual dosages can be worked out for the individual patient. Duration of the action of the drug varies from thirty minutes to one or two days. In cases of severe pain and critically ill patients initial dosages have been as high as twenty to thirty milligrams. Sustaining dosages range from 10 to 20 milligrams four times a day for several days to weeks. No ill effects have resulted from these prolonged dosages, in our experience.

Stability

Solutions of dibutoline may be stored at room temperature for periods of at least one year without precipitation, change of color loss of potency, or any other evidence of instability.

Observations on the Use of Dibutoline Clinically

Diseases of the gastro-intestinal tract. In gastritis and duodenitis, not associated with ulcers, a total of fourteen cases were treated with dibutoline. There was complete relief from pain in nine, partial relief in two, and no relief in three cases. Symptoms consisted of pain, with or without food, and bouts of associated nausea and vomiting. Drugs that had been used without much success included belladonna, atropine, and various antispasmodic preparations. The usual dosages and methods of injection were used and the duration of relief varied greatly. Some patients obtained relief for several hours from one injection of 10 milligrams; others required injections every three or four hours. Freedom from distress lasted only thirty minutes to one hour. In some patients relief lasted for as long as severa ldays. There was complete subsidence of nausea and vomiting and cramp-like pain in all cases.

Gastric Ulcer.—Four cases of gastric ulcer were treated with this medication. Of the four only one was completely relieved of distress, two were partially relieved, and one received no relief at all.

Duodenal Ulcer.—Twenty-four cases of duodenal ulcer were diagnosed by X-ray studies. Of these people fourteen received complete relief following a dietary regime plus interval injections of dibutoline, six received partial relief, and four seemed to notice no difference. In this series there were five patients whose pain could not be controlled by any other medication, and the relief in these cases was most gratifying. These people were given 10 mg. dosages every three or four hours, day and night, for the first two to three days, then the medication was gradually withdrawn, and, following relief, patients were placed on an ulcer regime with ordinary antispasmodic drugs.

Pylorospasm.—Ten cases of pylorospasm, with or without ulcer, were treated. Of the ten, eight received complete relief, two partial relief. Two of these cases formerly had been treated with a combination of demerol and atropine, with only partial relief, whereas they were completely relieved by dibutoline therapy.

Gastroenteritis (Acute).—Twenty-six cases of acute gastroenteritis, with nausea, vomiting, and watery diarrhea were seen. Sixteen of these patients received almost immediate complete relief with dibutoline alone, six partial relief, and four did not respond. One case of regional enteritis

was seen, and the patient obtained marked relief following injections every six hours. He had not received any relief previously from atropine, belladonna or demerol.

Diverticulitis.—Eight such cases were seen and treated over varying lengths of time. Five patients received complete relief and three partial relief from abdominal pain. These patients formerly had received atropine and belladonna and various antispasmodic drugs with less success. Several of these cases were maintained on this medication for as long as two weeks, with injections at regular intervals, with no ill effects and with complete subsidence of abdominal distress.

Ulcerative Colitis.—Three cases of ulcerative colitis were seen. Patients in two cases stated that they were greatly relieved from the cramping and watery diarrhea, which had not been controlled by atropine or the usual antispasmodic drugs. One patient received only partial relief.

Spastic Colon.—It was rather difficult to follow these cases, inasmuch as most of them were ambulatory; however, we were able to follow fourteen patients rather closely, ten of whom received complete relief following each injection. Length of time of relief varied from several hours to a day. Four received only partial relief, or at least the same type of comfort they had obtained from other antispasmodic drugs. Those who did receive help stated that it was much more satisfactory than the help they had received fro many other type of medication.

Biliary Colic.—Sixteen such cases were seen and in ten of the patients the results were rather dramatic, one received partial relief and five received no relief whatsoever. In the successful cases, narcotics, atropine, and various other type of antispasmodic drugs were used to no avail. Several of the patients obtained no comfort from large doses of demerol; whereas, 10 to 20 mg. of dibutoline relieved their symptoms completely. In this series are included three cases of common duct stone, in which an attempt was made to force the stone to move following massive antispasmodic treatment. Two of these cases were successful, one was not. In one case, under fluoroscopy and diodrast, actual dilation of the duct was demonstrated.

Dysmenorrhea.—Ten cases of dysmenorrhea were treated. Five patients obtained complete relief, five partial relief, and two noticed no effects. The patients who complained of premenstrual spasm were relieved almost immediately. Those who had pain and stress during the menstrual flow were not relieved. Two of the successful cases had been treated with narcotics and other powerful sedatives previously with no results.

Ureteral Colic.—Twelve cases were seen, seven with and five without stone. Five patients obtained complete relief, three partial relief, four no relief. Here again narcotics had been used unsuccessfully to obtain comfort, but in five cases the patient was made comfortable by the use of dibutoline alone.

The drug has also been used with success in post-cystoscopic spasms, and in bladder spasms. In all these cases there has been relief of pain.

There was one patient with a diaphragmatic hernia and oresulting spastic pain who received rather dramatic relief following dibutoline injection.

Dibutoline was tried in the treatment of asthma without success.

The drug has proven to be useful to the roentgenologist in combatting spasm of the intestinal tract in X-ray visualization of the gastro-intestinal tract.[12]

SUMMARY

We believe that dibutoline has proven to be a very effective addition to our armamentarium in the treatment of smooth muscle spasm. It has been of particular value in those cases where other antispasmodic medications and even narcotics have failed to effect relief, and although it is not a cure-all for nonstriated muscle spasm disorders, it has proven to be a very useful drug in this field. As seen in the outline under "Clinical Observations," relief has been dramatic and long-lasting in some cases; whereas, in other cases it has not. However, we feel that true spasm with associated severe colic and pain has been relieved in the majority of our cases in a gratifyin gmanner. The action of the drug has been swift and at times long-acting. In many instances a single dose provides relief for a period which far exceeds the duration of pharmacological activity. This would indicate that in these cases, once a spasm is relieved, it does not recur immediately even though no drug is acting to prevent it.[12] There is a disadvantage to the mode of administration, inasmuch as it is inef-

fective other than by subcutaneous or intramuscular injection, which makes it rather inconvenient for both the physician and the ambulatory patient. However, in cases where the drug has proven to be of value over a long period of time following a single injection, this disadvantage is minimal.

We may summarize by saying that in our experience dibutoline has been a useful antispasmodic drug.

CONCLUSION

1. Dibutoline, a powerful antispasmodic agent with cholyinergic nerve fiber blocking properties and smooth muscle inhibitory action, has been described.

2. It has been reported that the drug has remarkably low toxicity, and clinical observations of its use in various types of smooth muscle spasm disorders have been described.

3. The drug has proven to be of value in the treatment of pain caused by smooth muscle spasm and also has been reported as being of value in roentgenology.

4. There is a disadvantage to the mode of administration, inasmuch as the drug is ineffective when taken orally, but the relief afforded by the medication outweighs this disadvantage.

Type of Spasm	Total Cases	Complete Relief	Partial Relief	None
Gastritis Duodenitis	16	10	2	4
Gastric Ulcer	4	1	2	1
Duodenal Ulcer	20	14	6	4
Pylorospasm	10	8	2	
Acute Gastroenteritis	26	16	6	4
Diverticulitis	8	5	2	1
Ulcerative Colitis	3	2	1	
Spastic Colon	14	10	4	
Biliary Colic	18	12	1	5
Ureteral Colic	12	5	3	4
Dysmenorrhea	10	5	3	2

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PARIETO-COLIC MEMBRANES AND CHRONIC APPENDICITIS

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THE term "Parieto-colic membranes" as used in this paper will be limited to those accessory membranes or bands of the caecum, ascending colon and hepatic flexure, when the gut is normally rotated.

They are probably congenital in origin, although various opiniins are prevalent, and aided in the support of the large bowel in the horizontal position when man walked on all fours; but which in the upright position produce constriction of the lumen, and intermittent partial obstruction with distension of the proximal caecum, and with distress and nerve reflexes to other segments of the bowel.

The parieto-colic membranes of this area are divided into four main types—

1. The post operative adhesions, with which this paper is not particularly concerned.

2. Jackson's membranes, or veil, consisting of a broad filmy sheet attahced to the posterior peritoneum, lateral to the ascending and transverse colon, sweeping medially and downward over and around the ascending colon and reaching even to the caecum.

3. Lane's band—an ileo-pelvic, short, thick,

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band connecting the antit-mesenteric border of the lower four inches of terminal ileum to the pelvic brim.

4. Peri-colic membranes involving the lower ascending colon or caecum or ileo caecal junction and attaching to the peritoneal wall. Inflamatory adhesions about the ileocaecal junction are not of particular concern here, but the author believes that they should be severed so as to release the viscera to normal motility.

With this as an introduction, the purpose of this paper is to emphasize that parieto-colic membranes by whatever name, are pathological and do produce distressing symptoms and should be looked for and removed whenever they limit the normal motility of the bowel.

The height of humiliation to one's pride is reached by making a diagnosis of so-called "chronic appendicitis," finding a non-inflamed appendix with adhesions and feeling confident after removing it, that the patient would be rid of his complaints; and later to find him hounding you with the statement: "But, Doctor, I still have the same pains I had before—are you sure you removed my appendix?" Psychosomatology won't work here.

A typical example: Robert M., age 36, had complaintd of distresses in the abdomen for ten years; chief among them were indigestion, belching, feeling of fullness in the right side, distress in the right side on exercising, right rectus muscle resistance, mild constipation, distress after large meals, pain in the R. L. Q., tenderness of the right side, some nausea at times, flatulence, and more than normal nervousness and irritability. He stated he couldn't eat heartily and had to pass up many foods. He has at times had a pain and burning in the epigastrium.

In a hospital he had been thoroughly examined, including a gastrointestinal study, barium enema, gall bladder dye study—stomach analysis, kidney study, and pylograms—nothing significant was found and he was discharged.

Later he was examined by a private physician who advised and did an appendectomy, following which his convalescence was uneventful for one week. Then came a return of all of the previous symptoms. He later moved to California hoping for a climate cure.

He finally went to the Veterans Hospital where another complete check-up was done, including kidney study and pyelograms. At this time a peptic ulcer was diagnosed and he was placed on medical care along with thiamine chloride.

Six months later I saw him for the first time. His complaints included pain and distress of the right side, flatulence, nervousness, irritability, pain on exercising, indigestion, weakness, exhaustion, some loss of appetite, feeling of fullness on light eating and much discouragement.

He was moderately nourished with a slightly nervous temperament and unhappy in his outlook at doctors. He had completely normal physical findings except for a high right rectus scar and a definitely tender right-sided abdomen with some right rectus resistance from his gall bladder area to the pelvis. This had a doughy sort of feeling and some flatulence was audible on palpation.

A barium enema was given and the roentgenologist's report was essentially normal except for the following: "The caecum was well filled and was intrinsically negdtive except for some spasticity. There appear to be also some small adhesions in the ileocaecal area. An incompetent ileocaecal valve allowed some barium to flow into the ileum. A later picture, after evacuation, showed only a moderate amount of barium remaining, chiefly in the lower ileum and descending colon and sigmoid. The appendix was not visualized." His summary was: "The findings are those of moderate angulation of the colon together with adhesions."

He was further studied, including stool examinations, for parasites, digestive disturbances, blod studies, and so forth. Celiotomy was advised after two months of observation and treatment. Then it was, I lost him.

Two years later he returned. During the interim he had seen a neurosurgeon for possible cord tumor—one chiropractor, and two osteopaths, the last of which, after three months of treatment, advised him to be operated because it was beyond him.

The essential findings at operation were: "The caecum was found lying snugly attached to the posterio-lateral wall of the abdomen with adhesions at the junction of the ileum. There were adhesions between the ileum and caecum, which were separated and the ileum and caecum both mobilized and delivered. A Jackson's membrane which spread out in a fan shape over the whole ascending colon, beginning just above the ileocaecal valve, was found. This membrane was severed between ligatures in small portions until the entire ascending colon was mobilized, leaving it and the caecum freely movable. No other pathology was found." He has been entirely free from all complaints and in excellent health for two years, after ten years of distress.

A second case, a lady, Mrs. A. F., age 33, had an appendectomy six years previously. Her complaints on her first visit were:

1. Gall bladder trouble for years.
2. Pain in R. L. Q.
3. Nausea at times.
4. Pain in the pit of the stomach.

Her general build was slender and asthenic. A roentgenologist's report—"Gallbladder study showed normal filling, no stones, and normal emptying; kidney study normal, x-ray barium study of the stomach and duodenum normal. At the end of 24 hours and after evacuation, there was a definite stasis in the caecum suggesting the presence of a band or adhesions. The barium enema passed in readily. Lack of mobility and tenderness of the caecum were noted. His conclusion was: "Probable adhesions or band across the caecum."

Upon opening the abdomen the caecum was found lying well in the pelvis, and about 4" above the pelvic brim the ascending colon was found surrounded and suspended by a typical Jackson's veil. This membrane was severad in numerous places between uigatures. The caecum and ascending colon were completely freed and mobilized and all constrictions removed. She had an uneventful recovery and has been free of all complaints for four years.

I was embarrassed about ten years ago by the failure of a patient to stop complaining after appendectomy for a chronic appendicitis. I had had ample opportunity to rule out all other diagnoses and expected complete relief. Some time later I saw the late Charles E. Phillips make a diagnosis of a Jackson's membrane, name it as the pre-operative diagnosis, sever an extensive Jackson's membrane, and remove the appendix, after which the patient was completely relieved. I recalled that my patient also had a Jackson's membrane. Needless to say I re-examined him. The x-ray showed the caecum distended, tender, and relatively fixed with very little barium in the transverse colon. Following the second operation in which the membranes were severed, my patient became quite happy and has had no abdominal complaints since. Thus came my interest in these membranes. Though my own cases are few they correspond identically with those in the literature.

I was very amazed to find this subject not well featured in the Book of Standard Nomenclature as used in the hospital records classification; and further to find that in many hospitals these membranes, bands and veils are given slight recognition in the cross index system, thus making it extremely difficult to study the subject. The literature is also very scant on Parieto-colic membranes.

The surgical text books treat these parieto-colic membranes with but scant courtesy by mentioning them, and often miss the point by advising against all interference unless they produce obstruction.

In discussing this subject with numerous surgeons they generally consider these as normal and steer away from them. However, according to W. A. Bigelow of Brandon, Manitoba, Canada in reporting a series of over a thousand patients with peri-colic membranes, 10% had previous appendectomies.

He reported in 1938 on the end results of his operations for these congenital bands and membranes, on those who had previous operations for chronic appendicitis only, and who had not experienced any relief whatever from the appendectomy performed—and whom he had operated with complete removal of all abnormal congenital bands and membranes from the caecum, ascending colon, hepatic flexure, or any combination of these membranes. Out of 169 patients questioned, 147 answered, of which 136 reported complete cures. Eleven reported not cured, of which two had post-operative adhesions—were re-operated and cured. One was later diagnosed a neuralgia of the ileo-hypogastric nerve. One had no pain until a subsequent pregnancy and confinement when she reported similar right-sided abdominal pain. Seven did not return for examination. Thus he reported 92% cured of those who received no relief from a previous operation for so-called chronic appendicitis complaints.

Dr. Warren L. Duffield of Brooklyn, N. Y. in 1932 reported approximately 200 cases of which 10% had previous appendectomies, leaving the same symptoms which existed prior to surgery. This figure corresponds with Bigelow's experience of 107 out of a total of 1027 cases.

He further calls attention to the change in the local and reflex symptoms depending on the age of the patient. Constipation is present in 50% of all patients of all ages. Right iliac pain and tenderness are complained of in the age groups of the second and third decades but diminishes in the later decades. Nausea and vomiting are increasingly present with the increasing age groups as also are epigastric pain and flatulence. In brief, as age increases the local right lower

quadrant symptoms become less and the reflex symptoms to the stomach, pyloris, gall bladder, and descending colon increase. Thus the patient in later years tends to develop symptoms of gall bladder disturbance, stomach ulcers, pyloric spasms, feeling of fullness and meteorism, spastic colons, gas and indigestion, with easy vomiting.

Warren L. Duffield concludes that peri-colic membranes must be thought of when one is tempted to make a diagnosis of chronic appendicitis in the young and that they be considered in those beyond the second decade presenting early or typical symptoms and findings suggesting gastric or duodenal unlcers and spasm of the colon.

He also asks the question, is it possible that this right iliac fossa irritation which may so definitely and distinctly produce pylorospasm with its accompanying hyperacidity, be an etiological factor in gastric or duodenal ulcer?

Dr. W. H. Bueerman of Portland, Oregon in 1934 described at considerable length, the entire "congenital peri-colic membrane syndrome" and calls attention to an extensive list of symptoms not only local, as well as generalized, but also reflex in nature; and concluded that the congenital peri-colic membrane syndrome may explain why some of the cases of upper and lower abdominal chronic symptomatology attributed to low grade infections of the gall bladder and appendix were not relieved by the removal of the gall bladder or the appendix or both.

Golder McWhorter of Chicago in 1936 reviewed the literature and concluded that attacks and symptoms of incomplete obstruction with distension and limitation of mobility of the caecum and ascending colon may be mistaken most frequently for acute, subacute or chronic appendicitis, and that a careful, gentle exploration should be made for parieto-colic membranes as well as other pathological conditions at all operations, except in acute conditions, or where it would not be good surgical practice.

Credit must be given to Wilms and Jackson, who did much to call attention to the futility of expecting a clinical cure in patients complaining of pain in the right iliac fossa by simple appendectomy when there were present congenital membranes constricting the ascending colon and hepatic flexure. Far too *little* importance has been credited to Jackson's original monograph on "Membranous Parieto-colitis" published in 1909. Though the title is a misnomer, the paper is a classic in its description of Parieto-colic membranes, their symptoms and treatment.

In conclusion:

1. There is much eivdence that the distressing symptoms of localized ascending large bowel constriction may be mistaken for the clinical chronic appendicitis syndrome; and failure to recognize parieto-colic membranes and to remove them will explain some of the faliures to cure the symptoms attributed to chronic appendicitis.

2. Far too *little* appreciation and signifi cance by the medical profession is attributed to the distress syndrome and pathology produced by these membranes.

3. Far too *much* significance is attached to the quick appendectomy and the small incision, and not enough to the symptom-producing membranes of the ascending colon and caecum.

4. All such membranes should be searched for in the abdomen and listed in the cross classification in the hospital records as well as the disposition of same by the surgeon. The subject needs to be better known and considered in the differential diagnosis of all symptoms of the gastro intestinal tract and abdomen.

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SERVICING NATURE'S "AIR CONDITIONER"

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IN recent years mechanical engineers have added greatly to our bodily comfort and pleasure by developing year around "Air Conditioning" for our homes and public buildings, yet, for untold centuries, Nature has had an "air-conditioner" functioning in the upper respiratory tract of mammals that for size and efficiency far surpasses anything our modern engineers have been able to develop!

It is simply ludicrous to imagine that a business firm handling air-conditioning equipment, would send out men to service it who had never been taught the fundamentals of its operation, and yet, the paucity of the knowledge of the average physician on the functions of the nose is appalling! How many of you here today can give a definite yes or no to this question, "Do the nasal sinuses play any appreciable part in modifying the air we breathe?"

Why should you have any knowledge of this when none of the textbooks that you studied even hinted that the nose plays such a vital role in this business of actually keeping alive? I have searched diligently through all the textbooks of general physiology and I failed to find a single one that even considered the nose as an organ, like the heart or the lungs. Even the textbooks on Nose and Throat devote very little space to functions of the nose.

To the pioneer work of Arthur Proetz of St. Louis, as much as to any one man, is due the honor of stimulating the great amount of research that has been done in the last few years on the physiology of the nose, and to French K. Hansel goes the honor of focusing our attention on the part that Allergy plays in upsetting those normal functions.

Just as in any other "Service Manual" on air-conditioning equipment, our "Manual" today, will also start out with a brief description of the parts and how they work.

Since every phase of nasal activity is dependent on *movements* of air, we might conveniently divide these functions into two groups: (1) Those that affect the air going into the lungs, and (2) Those functions depending on air going out through the nose.

In the first group are (1) the sense of smell, (2) a thermoregulatory system, (3) the respiratory function or "air conditioning," and (4) Bacteriostasis.

In the second group—Phonation.

A brief review of the anatomy will help us visualize how such a seemingly small organ can accomplish so much. In this slide, both the sagittal and coronal sections have been drawn to the same scale. It serves to emphasize two facts, (1) the size and volume of the air space occupied by the accessory sinuses, and (2) the vast amount of mucous membrane surface that is exposed to the air, especially when you compare this total area with the cross-section area of the nasal meati.

Another factor to keep in mind is the location of the openings of the sinuses. As you well remember, the ostia of the frontal and maxillary lie just below the insertion of the middle turbinates on the lateral walls, while practically all the other ostia are above this point. The points that I particularly wish to emphasize here, are the size and position of these ostia, especially in relationship to their own individual sinuses. With the exception of the frontals, each ostium is well above the floor of its sinus, so that little or no fluid can drain out of them, even in the face down position. Evidently, then, Nature designed them as air chambers. Since these ostia are so small, the volume of air interchange between the sinuses and the nasal cavity is so slight that the value of these chambers in warming and moistening the air for use in the lungs is practically nil. They are so situated in regard to the air currents, however, that they make excellent resonators. However, this condition is present only in relation to *expired* air. The contour of the turbinates is such that none of the air currents set up by *inspiration* comes in direct contact with the ostia, but the air currents set up by *expiration* flow directly past them. This accomplishes two things: it insures their protection against dehydration and external violence by keeping them constantly bathed in warm moist air, and, at the same time, the sound vibrations set up in the outgoing air column by the vocal cords can be readily amplified. Thus we

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see that one important function of the accessory sinuses is the amplification of sound.

Another important anatomical fact to consider is the blood and nerve supply to these parts. Since the sinuses develop by a process of invagination into solid bone, and as the mucosa is laid down as the cavities are formed, naturally most of the nerves and blood vessels of the mucosa lining the sinuses must get there by way of the ostia. Therefore, any factors influencing the state of the mucosa around these will also influence the state of the mucosa lining the sinuses. Hence the importance of getting your medicaments *to* the ostia, if you wish to get the maximum effect of these medicaments on the sinuses. This can only be accomplished at home, by the patient, by his assuming one or the other of these two positions, and to stay in that position long enough for the medicine to do its work before it runs on into the pharynx. So, if you feel that you must prescribe the use of nose drops, be sure that you instruct the patient in how to use them right!

Still another very important anatomical fact to consider is the position on each side of the nose, of one of the largest of the ganglia of the sympathetic system, the sphenopalatine or Meckel's ganglia. These two ganglia, as you well remember, have direct connections through the vagi and the parasympathetics with all the somatic processes in the body. Each one lies just beneath the mucosa at the posterior tip of the middle turbinate. This places it in the "slip-stream" of both in-coming and out-going air, where both normal and abnormal changes in this medium can easily influence it. In addition to that, the normal drainage from all the sinuses flows directly over them. They are separated from three different sinuses, antrum, ethmoid and sphenoid, by such thin-walled partitions that any internal inflammatory changes in these particular sinuses can easily effect them. Is it any wonder, then, we so frequently get symptoms affecting the whole body when there is some pathological process going on in the nose and sinuses?

The organ of the sense of smell occupies but a very small space, and that in the uppermost part. Since man is not dependent on this function to obtain his food or protect him from his enemies, its main value to us is chiefly through its relationship to the sense of taste and the nervous mechanism controling digestion.

A function of the nose that has received but little consideration until recently, is the relationship betwen the nose and body temperature.

Muzio ran a series of interesting experiments which showed that thermic excitation of the upper respiratory tract produces a vasomotor reaction in the skin. It was demonstrated that when a current of warm air passes through the nose, a cutaneous vasodilation is produced, and when a current of cold air is applied in the same manner, the opposite effect, viz: vasoconstriction, is produced in the skin. These reactions show that the nose possesses a thermo-regulator for the whole body. This acts through the sympathetic and parasympathetic systems. This cutaneous reaction is just the opposite to what happens in the nose itself, for inhalation of cold air induces a vasodilation of the venous plexuses of the turbinate bodies.

The third function, that of changing the outside air to make it suitable for the lungs to handle, is accomplished in a truly remarkable manner. In the exceedingly short time that the air uses in passing through the nose, three distinct changes take place: (1) the temperature is changed to approximately body temperature; (2) it is nearly saturated with moisture; and (3) the heavier than air particles are cleaned or "filtered" out to a marked degree. All three changes are aided to a great extent by the simple expedient of slowing down the speed of the air currents through the nose. Everyone is conscious of air movements at the entrance and at the pharynx, so we take it for granted that the air passes just as rapidly between these two points.

You have all seen little lakes in the mountains. You could detect no movement of the water any place except at the outlet or inlet. Just so has Nature slowed down the movements in the nose. Compare the size of the outlets and inlets to the actual volume of the cavity of the nose and you will see what I mean. You feel movement of the air as it goes in here and displaces air already in this space, and you feel the movement of this displaced air going into the pharynx, so, it is natural to assume that it goes straight through. What really happens is that the currents tend to go straight up and then diffuse down and back over the turbinates.

You can prove this to yourself by remembering that when you wish to detect a faint odor you instinctively make a sudden "sniffing" in-

halation in order to send more air into the upper part of the nose over the olfactory area. Or you might ask yourself this question: "Why should a sudden downward movement of the diaphragm cause the air in the nose to shoot up higher than it does in normal respiration?" The answer to that question again shows how Nature makes use of very simple expedients to gain her objectives: she made the entrance to the nose perpendicular to the plane of the face!

This was done to take advantage of a law of physics which says that gases on being forced through a small opening move at a right angle to the plane of that opening. Illustration—pin prick in a toy balloon.

In ordinary respiration, then, the actual speed of the air is perceptibly slowed down before it leaves the vestibule, and passes over and under the turbinates by slow diffusion eddies. This slowing of the air not only allows it to have longer contact with the turdinate bodies so that temperature and humidity changes can take place, but the loss in momentum allows the coarser of the heavier than air particles that have gotten by the vibrisssae to settle down to the floor. The lighter particles, like the bacteria-laden moisture droplets, are prevented from passing into the lungs by coming in contact with the sticky surface of the mucous sheet that covers the whole mucosa.

Let me pause here to emphasize the importance of this sheet of mucus. It is one of the most, if not *the* most valuable means of defense our bodies have against bacterial invasion! Here at the point where our bodies are subjected to the most violent assaults by these bacterial invaders, Nature has furnished us with a substance that not only has some bacteriostatic properties of its own, but its very viscosity and constant movement tend to prevent there being any chance for the bacteria to come in actual contact with the mucosa itself. It is only when the bacteria get *through* the mucosa into the submucosa that we have any signs of inflammatory changes. So, would it not be logical to infer that anything that would interfere with the normal direction of movement or slow it down in any way, would make it easier for bacteria to make contact with the mucosa and penetrate it? Thus it behooves us to learn more about the agents that affect this mucus and its movement.

During the last few years a great deal of research has been done on this subject, notably by Proetz, Van Alyea, Tremble, and many others. They have shown that the whole mucous surface lining the nose and sinuses is covered with a completetly intact sheet of mucus which is constantly in motion. Inside the sinuses, the movement of the mucus is toward the ostia, while in the nasal passages this movement is toward the posterior orifices, at the rate of 4 to 6 mm. per minute, a new layer of mucus forming every ten minutes.

The *total amount* of this mucus that is secreted every twenty-four hours by a normal adult is approximately one quart, which is emptied into the pharynx, mixed with the saliva and swallowed.

This, at first thought, seems to be a rather peculiar phenomenon. Nature goes to a great deal of trouble to filter the dust, bacteria and other harmful substances out of the air that goes into the lungs and then dumps it into the stomach! However, the gastric juice is capable of destroying most of the harmful ingredients in the swallowed mucus. Yet, in a recently published article, one of our leading pediatricians stated that the loss of appetite, malaise, etc., of youngsters suffering from chronic sinus infections was due to the pus that they were constantly swallowing. Personally, I believe that their symptoms are due either to the effect these toxins have on the sphenopalatin ganglia, or to the amount of these toxins that are absorbed through the thin-walled venous plexuses of the turbinates, rather than from the *tough* lining of the stomach. This phenomenon should also explain the inefficacy of oral vaccines. If swallowing vaccines will build up an immunity, why haven't we all developed complete immunity to bacterial diseases long ago, since we are daily swallowing many millions more bacteria than are ever given in any oral vaccine?

The mechanism that keeps this sheet of mucus in motion has received a great deal of study. The outer layer of cells of the mucosa of the nose and sinuses is ciliated columnar epithelium, interspersed with numerous goblet cells which form the mucus. The cilia keep up a constant rhythmic motion and always in the same direction, so that the layer of mucus is impelled as a complete sheet. If for any reason there is a slowing down of the ciliary activity in one small area, the mucus beings to adhere at this point, but the rest of the sheet keeps on moving, until

the force of the whole action pulls it loose or produces a tear. If a tear occurs, the way is left open for the bacterial invaders to come in contact with the mucosa itself.

There are a great many factors, both chemical and mechanical, which interfere with ciliary activity. The two most common ones are trauma and dehydration. In other words, anything that will cause an undue amount of dryness in the nose, or that will mechanically tear this mucous sheet, either on the part of the patient himself, or the doctor treating the patient, is a potentially predisposing factor causing infections of the upper respiratory tract.

Let us consider for a little the factor of dryness in the nose. The various investigators are not agreed as to the exact amount of water given off by the nose to the air going into the lungs, but all are agreed that, with the outside air containing 35% humidity, the nose of the normal individual gives up at least one quart every twenty-four hours. Then if the humidity of the air is materially reduced, much more moisture must be given up by the mucosa. A normal nose can take care of this extra burden for a reasonable length of time, but if this period is unduly prolonged, particularly if in addition to this it has to stand the added insult of handling air in crowded quarters containing an unusual amount of infectious material from sneezing and coughing of those already infected, it soon reaches the limit of its ability to handle the situation.

You are no doubt wondering why I bring that up, when most of us do not live in a particularly dry climate. Did you know that if the temperature of air containing 35% humidity is raised from the freezing point to 70°F that its humidity is lowered to 15%? In other words, the air in the average home or office during the winter time is drier than that of the Sahara Desert!

While the nasal mucosa requires a certain amount of moisture in order to function properly, an excess of water beyond that optimum amount becomes definitely harmful. Several investigators have reported that irrigating the nose with only 500 c.c. of normal saline will cause a temporary cessation of ciliary activity for quite a period of time, and repeated irrigations will destroy the cilia completely and the cuboidal cells will be replaced by stratified squamous cells. Yet, all our N. & T. Journals still carry ads urging the sale of nasal irrigators for treatment of acute sinusitis!

Many of the drugs commonly used in the nose have been shown to be definitely harmful to ciliary activity. This is particularly true of the sulfonamides, which not only inhibit ciliary activity, but tend to cause a degeneration of the surface cells of the mucosa. Adrenalin, even in very weak dilutions, will cause a permanent paralysis of the cilii with which it comes in contact. Cocaine, if only used in dilutions of 4% or less, is not harfmul to the cilia, but 10% or stronger will kill the cilia, and it will take several days for them to regenerate.

Oils slow down ciliary activity by their mass action, and since they are not miscible with the mucus, the effectiveness of their dissolved medication is open to question.

Many nasal sprays and nose drops still contain camphor, eucalyptol, or menthol, under the mistaken assumption that they will "clear" the nasal passages. It has been proven that none of these drugs have any vasoconstriction action whatever. Their seeming therapeutic effect is the result of their anesthetic action on the mucosa.

The isotonicity and the pH of the secretions are very important. Either hypo- or hyper-tonic solutions will inhibit ciliary action. The normal pH is slightly acid, becoming slightly alkaline in the presence of acute infections, so, the ideal vehicle for nasal medication would be an isotonic buffered solution with a pH of 6.2 to 5.7. In this solution one might use ½ to 1% ephedrine; 1% neosynephrin; or 0.1% privine without materially affecting the activity of the cilia.

It is apparent, therefore, that the concept of treating nasal pathology must be modified from an exclusively anti-septic or anti-bacterialogical point of view, to one that encompasses physiological principles.

The way in which an organ is used will also enhance or detract from its efficiency. Even so simple a thing as the way in which the nose is blown, may have far reaching effects. The desire to blow the nose is similar to the desire to scratch when you have a pruritis—if you indulge it too frequently or too vigorously, you defeat the end you sought. Too vigorous blowing of the nose not only tears off the normal protective sheet of mucus, but the force of the rapidly moving air causes more irritation and swelling, thereby stopping the passages still further,

causing more desire to blow and so on ad infinatum. Another bad feature of blowing the nose too vigorously is the danger of forcing infectious material back into the sinuses or in through the eustachian tubes to the middle ears.

The underlying cause of the big majority of all the symptoms complained of by patients suffering from pathology of the nose can be summed up in one word — *swelling.* Swelling of the nasal mucosa, in turn, is caused by either an inflammation or an allergic reaction, or it may be a combination of the two. For so many years we have been imbued with the idea that all tissue-swelling is of inflammatory origin, that it is hard to believe that 70% of all these cases have an allergic factor. Yet that figure has been pretty well agreed upon by all rhinologists who have really made an investigation of the subject. However, a routine smear made from the secretions of the nose of every patient showing nasal symptoms and stained as you would for a differential blood count will soon convince you of the truth of these figures. No satisfactory explanation has as yet been made of the role that the eosinophiles play in allergic reactions, but they are always there in large numbers, both in the tissues themselves, as well as in the secretions from the tissues. This, then, is the reason for doing routine nasal smears as a diagnostic procedure.

Food allergens play a rather minor role as the causative factors in nasal allergy, but it is often necessary to put the patient on an "elimination" diet in the early part of the treatment until they become partially desensitized to the inhalants.

Inhalants are the most frequent allergens inducing nasal allergies. Among the common ones of these are feathers, animal danders, cosmetics, tobacco and tobacco smoke, but the most frequent of all are house dust and molds.

Luckily for us, nasal patients respond well to desensitization to the inhalants, when treated with the minute dosage that Hansel calls the "optimum" dosage, as contrasted to the original idea of trying to build the dose up as high and as rapidly as possible. I have had one patient, whose nose was completely occluded with polypi, who came into the office twenty-four hours after a single dose of 0.05 c.c. of a one to a million dilution of house dust and molds, stating that she had breathed through her nose all night for the first time in weeks. Of course it is not often that you are lucky enough to hit the optimum dosage that easily, but all cases of nasal polypi are benefited by allergic treatment. Cases of third degree polyposis, especially if they have been of long standing, get much quicker relief by the surgical removal of the polypi. This should be followed by a thorough allergic examination and treatment to prevent their recurrence. Many seasonal hay fever patients are kept symptom free during the heighth of the season by the intra-dermal injections, at twenty-four or forty-eight hour intervals, of a similar dilution of the pollens to which they are sensitive.

The anti-histaminic drugs are of great value in relieving the symptoms of these patients, but we like to restrict their use to a minimum, particularly in the early stages of the treatment, while the "optimum" dose is being worked out.

The vasoconstrictor drugs should not be used by patients whose symptoms are primarily allergic, because they are more prone to become sensitized to them, particularly to privine. Neosynephrin is also a very common offender in this respect. Ephedrine, in weak dilutions, has the least allergenic tendencies of any of this class of drugs. So this is the vasoconstrictor of choice to use when there is an acute inflammatory reaction present, but even these patients should be cautioned against using it too long.

In closing, let me again emphasize the fact that no good mechanic ever goes out to service any "air-conditioning" equipment, without being thoroughly familiar with "how it works!"

EFFECTS OF ACTH AND CORTISONE ON RHEUMATOID ARTHRITIS

W. PAUL HOLBROOK, M. D.,
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HERETOFORE our knowledge of the remissions seen in rheumatoid arthritis has been limited to the study of unpredictable and indefinite cases of remissions associated with pregnancy, jaundice and occasionally with the administration of gold. ACTH and Cortisone have made it possible to study clinical and laboratory changes from active disease to remission in the space of a few days, thereby suggesting that there is a definiee remission factor present and that it is common to all cases of rheumatoid arthritis. In previous studies it was found that there was a distinct difference in amino acid urinary excretion values between normals and patients with active rheumatoid arthritis. Consequently, the remissions produced with comparative ease by ACTH and Cortisone were studied from the standpoint of amino acid excretion levels before the administration of medicine and following a prearranged schedule of administration.

Selection of Patients and Methods of Study

During the past year ACTH and Cortisone have been administered to a total of 71 patients. These patient ssuffered from active rheumatoid arthritis and had been under close observation for several months or longer. Preference was given to the acute and severe cases with minimal joint destruction and in whom we believed there was a measurable amount of reversible disease present.

The average age of the patients studied was 43.5 years, ranging from 20 to 73 years of age. The average duration of the disease was 5.7 years, varying from six months to 17 years.

The first patients studied were hospitalized during the entire period of investigation. They were observed during the initial control period prior to the institution of experimental therapy, during which time they were under metabolic control with identical daily diets, absence of medications and degrees of daily activity. Objective and subjective symptoms and signs were noted and recorded daily. The degrees of stiffness, rest pain and motion pain, as well as heat, swelling, redness, tenderness, strength of grip and degrees of function, were included in each patient's record. Blood pressure readings and weight recordings were also made.

During the past month we have instituted a program of treating patients on an ambulatory basis with multiple daily injections, both in the office and at home.

DOSAGE

Cortisone. Originally Cortisone was given in the dosage of 300 mg. the first day and 100 mg. thereafter. Of late we have been giving 100 mg. of Cortisone daily without the initial 300 mg. injection.

ACTH. In our early studies we administered 80 mg. of ACTH daily. One patient received as high as 160 mg., but we have found that optimal doses are lower than the original 80 mg. Most of our patients have received 40 mg. daily with good results. In recent months we have experimented with even smaller doses ranging from 5 mg. to 40 mg. a day. It has been further found that divided dosages are of more value than one single dose daily. Consequently, our patients have all been given ATCH every six hours. We have made many attempts to reduce the dosage of ACTH to the minimal dosage at which the remission factor is present. One 73-year-old woman with severe rheumatoid arthritis experienced complete remission on 20 mg. daily. Two patients received an almost complete remission on 10 mg. daily. All the patients exhibited measurable remission on 40 mg. or less per day.

Duration of Treatment

Duration of treatment for the hospital group ranged from 10 to 20 days. We have not as yet established a duration schedule for ambulatory patients; however, we do have several patients who have received intermittent courses over the period of the past nine months resulting in complete remissions.

Presented before the Arizona State Rheumatism Association, May 1, 1950, Phoenix.

TOXICITY

Cortisone. Of the patients treated with Cortisone only two, both females, showed early a tendency toward rounding of the face or moonface, slight hirsutism and slight tibial edema, with evidence of mild sodium and water retention. These changes disappeared during the next two weeks after discontinuation of the medicine. None of the patients developed glycosuria, hypertension or psychoses; however, these are all short term studies and other reports indicate there are more serious hazards in long-term large dosage administration.

ACTH Of the patients receiving the larger doses (80 to 160 mg.), one developed transient hypertension and sodium and water retention, with weight gain. Three appeared moderately depressed in emotional tone. Of the remainder of the patients receiving 40 mg. or less, none showed any evidence of weight gain, hypertension, glycosuria, elevation of blood sugar, hirsutism or depression. There was some occasional euphoria and insomnia. Here again these are short term studies, although we have had experience with intermittent dosages for longer than eight months without evidence of undesirable effects.

Clinical Results

The typical clinical response to ACTH and Cortisone was one of marked improvement in symptoms within the first 48 hounrs. The patients described a feeling of well being. There was a dramatic decrease in stiffness, rest pain, joint tenderness, motion pain and swelling. There was a striking increase in strength as early as the first 24 hours of treatment. Appetite was generally improved by the third day. The erythrocyte sedimentation rate dropped an average of 41 mm. (Westergren method) in one hour. There was an increase of total white blood cells, averaging 3,100 per cu. mm., and a decrease in lymphocytes averaging 11%. In all cases receiving 40 mg. daily or more there was a drop in the daily quantitative eosinophil count averaging 240 per cu. mm. by the sixth day.

DURATION OF REMISSION

Cortisone. One patient experienced a severe exacerbation of her disease within 48 hours after discontinuation of the medication. Another patient has retained 75 per cent of her improvement for six months or longer. The remainder of the patients gradually returned to their former degree of disability within one to eight weeks. More than half, however, have retained measurable benefits for more than six weeks, but none of the patients have retained the degree of maximum improvement that they experienced while receiving the medication.

ACTH. One patient experienced an acute recurrence during the first 24 hours following cessation of medication. Twenty patients have retained approximately 75 per cent of their improvement for more than four months. Seven patients have received intermittent administration of ACTH for more than six months, receiving some ACTH at least once weekly. One patient has received 10 to 20 mg. three times a week for six months and has maintained 85 to 90 per cent remission. Two patients, who had received Cortisone some six months or more previously and had relapsed, responded well to 40 mg. of ACTH for a short period of administration. It therefore appears that at least under the conditions studied, significant resistance to ACTH has not developed. Duration of remission following cessation of medication varied widely in each case.

In several instances we have noted normal laboratory findings without complete clinical response and the reverse was also found. In two cases, the sedimentation rate failed to go below 90 mg. (Westergren method), yet the patient was completely free of the disease clinically. In three cases, the sedimentation rates dropped to normal levels and the patients exhibited less than an average clinical improvement.

Plans for the Future

We have found a marked rise in urinary excretion of several amino acids studied during each remission of the disease, whether the remission be produced by Cortisone, ACTH, pregnancy or jaundice. Attempts were made to reproduce these findings with testosterone, adrenalin, amino acid feedings, vitamin C, salicylates, antihistiminics, Artisone and X-ray therapy. To date we have not had success in these attempts. The changes seen in amino acid metabolism may or may not have any relation to the remission factor. It may simply be another example of measuring a physiological reaction not essential to remission. An attempt is being made either to produce this amino acid pattern without remission or to produce a remission without the amino acid pattern. Much additional work is needed.

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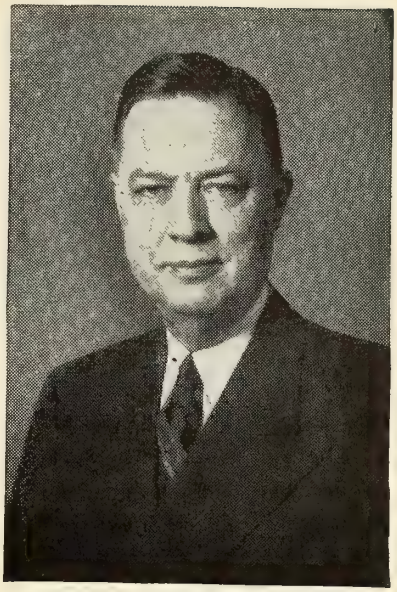
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Dr. Elmer L. Henderson, President American Medical Association

Editorials

INAUGURAL ADDRESS

of

DR. ELMER L. HENDERSON

President of the American Medical Association

In the Gold Ball Room of the Palace Hotel in San Francisco, California, on the evening of June 27, 1950, at 6 o'clock (Pacific Coast Daylight Time), in a hard-hitting inaugural address broadcast Coast-to-Coast over two radio networks (ABC and Mutual), Dr. Elmer L. Henderson of Louisville, Kentucky, new president of the American Medical Association, charged that "the administrative arm of our Government has failed us in this generation."

The fighting doctor from Kentucky, who took his oath of office at an open meeting of the A.M.A. House of Delegates here, and whose message was heard by millions of the American people, flatly accused "little men with a lust for power" in the executive branch of the Government of seeking to make America "a Socialist State in the pathetic pattern of the socially and economically-bankrupt Nations of Europe."

A Sick Government

The Administration in Washington, asserted Dr. Henderson, is "sick with intellectual dishonesty, with avarice, with moral laxity and with reckless excesses."

That condition must be changed, he declared, "if we are to survive as a strong, free people"—and he called upon all of the American people to share the responsibility and to uphold the Nation's ideals of freedom.

To the 144,500 members of A.M.A., who had received special invitations to hear their new president's address, he said:

Medicine—The Target of Cynical Men

"Tonight I call upon every doctor in the United States, no matter how heavy the burdens of his practice may be, to dedicate himself, not only to the protection of the people's physical health, but also to the protection of our American way of life, which is the foundation of our economic health and our political freedom."

Continued the new A.M.A. president:

"American medicine has become the blazing focal point in a fundamental struggle which may determine whether America remains free, or whether we are to become a Socialist State, under the yoke of a Government bureaucracy dominated by selfish, cynical men who believe the American people are no longer competent to care for themselves.

Under Socialism, Liberty Dies!

"These men of little faith in the American people propose to place all our people, doctors and patients alike, under a shabby, Government-dictated medical system which they call Com-

pulsory Health Insurance. But it is not just socialized medicine which they seek. Their real objective is to gain control over all fields of human endeavor—and to strip the American people of self-determination and self-Government.

"There is only one essential difference between Socialism and Communism. Under State Socialism human liberty and human dignity die a little more slowly, but they die just as surely!"

Then Dr. Henderson, declaring that "American medicine has led the world in medical advances, and has helped to make this the healthiest, strongest Nation on the face of the globe," blasted the critics of medicine with this significant statement:

"It is not American medicine which has failed to measure up to its obligations.

"It is not American business nor American Agriculture which has failed—nor the fine, loyal working people of America who have failed.

"It is the administrative arm of our Government in Washington which has failed us in this generation!"

Press Praised for Leadership

Stressing the fact that many already recognize the dangerous trend toward concentration of power in Washington, Dr. Henderson declared:

"If it were not for the leadership of the American press, in defending our fundamental liberties, American medicine, even now, might be socialized—and under the heel of political dictation.

"The newspapers of America, with few exceptions, have taken a strong stand, not only against socialized medicine, but against all forms of State Socialism in this country—and the doctors of America are proud to take their stand beside the fighting editors of America in the battle to save our freedom and the system of individual initiative which maintains it."

The Miracle of Medical Progress

Reviewing the great achievements of American medicine at the half-way mark of the 20th Century—with 19 years added to the life span during the past five decades, with many dreaded diseases conquered, which were leading killers at the turn of the century, and with the maternal death rate in this country now lower than in any other Nation—the A.M.A. president commented:

"The story of never-ending medical progress in this country is not just a story of so-called miracle drugs and miracle discoveries. The real miracle of American medical progress is the miracle of America itself—the motivating power of the American spirit, of free men, unshackled, with freedom to think, to create, to cross new frontiers.

"This is the spirit, and these are the very methods, which Government-domination of medical practice would destroy."

Voluntary Way Is American Way

Declaring that the Nation's medical care problems can be resolved "without compulsory payroll taxes and without political pressure," Dr. Henderson pointed out that approximately half the population of the country already has enrolled in Voluntary Health Insurance plans "to take the economic shock out of illness."

Said Dr. Henderson:

"Within the next three years, in the opinion of leading medical economists, 90 million persons will be enrolled in the Voluntary prepaid medical plans—and when that number has been reached, the problem will have been largely resolved."

Dr. Henderson concluded his address by thanking the American people for coming to medicine's defense when it was brought under attack—and reported that more than 10,000 National, State and local organizations, with many millions of members, have taken positive action against Compulsory Health Insurance.

AN EDITORIAL

The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated and all will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling and punctuation.
2. Follow the general rules of medical writing as followed by the Journal of the American Medical Association. (*See Medical Writing* by Morris Fishbein.)
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several

times to correct, especially for spelling and punctuation.

5. Submit manuscript typewritten and *double-spaced.*

The Editor is always ready, willing, and happy to help in any way possible.

PHOENIX CLINICAL CLUB

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

Massachusetts General Hospital
Case Report No. 31152

A thirty-six-year-old graduate nurse was admitted to the hospital because of irregular and profuse menstrual bleeding.

From the time of the menarche, at the age of sixteen, the menstrual periods were irregular and profuse, with considerable loss of blood on each occasion. At times there were long free intervals. At the age of twenty an appendectomy was performed, and a tube, said to be tuberculous, was removed. Following this she had long stretches of amenorrhea, followed by profuse bleeding, occasionally with clots, requiring eight to ten napkins a day for seven days. She received a variety of endocrine preparations, with no apparent effect until about four years prior to admission, when, following the administration of Antophysin, her periods became regular and normal for about two and a half years, but then again became infrequent and profuse. For six months preceding entry she had had almost continuous flow.

The patient had always been obese, averaging 230 pounds. Two years before entry, while on a diet, she lost 75 pounds, but she had subsequently regained 50.

The patient's father died of tuberculosis when she was three years old, and a younger sister had pulmonary tuberculosis.

Physical examination revealed an obese woman in no acute discomfort. The skin was warm. There was no palpable adenopathy. The fundi were normal. The thyroid gland was not enlarged. The breasts were pendulous. The heart and lungs were negative. Slight tenderness was present on deep palpation in the left lower quadrant of the abdomen. A pelvic examination revealed a slightly enlarged uterus but was otherwise not remarkable.

The temperature, pulse and respirations were normal. The blood pressure was 120 systolic, 74 diastolic.

Examination of the blood revealed a red-cell count of 3,570,000, with 10 gm. of hemoglobin, and a white-cell count of 5100, with 66 per cent neutrophils, 27 per cent lumphocytes, 5 per cent monocytes and 2 per cent eosinophils. There were no significant red-cell abnormalities on smear. The urine had a specific gravity of 1.020 to 1.030, with a 0 to one plus test for albumin; a few white cells were found in the sediment. The serum nonprotein nitrogen was normal, and the protein 5.9 gm. per 100 c.c. A glucose tolerance test revealed a fasting level of 105. mg: per 100 c.c., which rose to 185 at the end of two hours, and to 162 mg. at the end of three hours. The basal metabolic rate was plus one per cent. A blood Hinton test was negative. A tuberculin test (dilution unknown) was strongly positive.

Roentgenographic examinations of the skull, spine and urinary tract were negative.

On the fifth hospital day an operation was performed.

DISCUSSION

Dr. Phillip E. Rice:

A 36-year-old obese female had irregular and profuse menses all of her menstrual life except for long stretches of amenorrhea at age 20, following appendectomy and removal of a tube said to be tuberculous, and except for a 2½ year period of regular periods following administration of Antophysin four years ago. For the past six months flow had been continuous. Other endocrines had no effect and I assume that the Antophysin no longer helped. The patient's father and a sister had tuberculosis and the patient's tuberculin test was strongly positive, but she lost no weight and we are not told if she had a cough or ever had a chest x-ray. This last is either a serious oversight or is withheld from us.

Except for slight deep tenderness in left lower abdomen and a slightly enlarged uterus, the pelvis examination was not remarkable. I can appreciate that examination of a 230 lb. woman was neither easy nor reliable. She had no fever and reported laboratory work was all normal except the glucose tolerance test, in which the blood sugar stayed up to 185 and 162 mg. at the end of two and three hours respectively. Urinary sugar test was not reported but is assumed to have been negative. She had a moderate anemia as one might expect with all this blood loss.

It seems strange that anyone who had bled as much as this girl had never had a diagnostic curettage. Finally at the end of our protocol it

says "an operation was performed." Was this the long delayed D. & C. or did they take the bull by the horns and do a hysterectomy? If they did, it must have been a great relief to this woman.

It seems quite probable that this girl had tuberculosis when she was young as evidenced by the positive tuberculin test, the family exposure, the periods of amenorrhea and the report of a tubercular tube being removed. But where is our chest x-ray report?

Genital tuberculosis in the female may originate either as a part of peritoneal tuberculosis wherein tubercles are implanted on the tubes, ovaries, etc., or it may begin inside the tubes from stray bacteria picked up by the fimbriated ends or from hematogenous spread. In the former cases the symptoms and signs are those of the tuberculous peritonitis, while in the latter case the disease may resemble a recurrent gonorrheal infection. The tube becomes hyperplastic and indurated and the disease may readily spread to the endometrium and the ovaries. A positive diagnosis is practically impossible without biopsy or finding the organisms on smear or culture. Since the disease is nearly always accompanied by pulmonarly lesions, a chest x-ray is imperative. But our patient's symptoms are all referable to bleeding and she gives no history of pelvic inflammatory symptoms.

What are the causes of uterine bleeding? Briefly, they may be grouped under the following five headings:

1. Complications of pregnancy.

In our patient we have no evidence to place her in this group.

2. Benign tumors of the uterus.

Our patient might very well have a submucus fibroid, and we cannot rule this out.

3. Malignant tumors of the uterus.

Here too, the only evidence we have against this is the long standing history of bleeding. However, this does not prove that she might not have an endometrial malignancy.

4. Functional bleeding.

Surely this is what she was treated for all of her life, and a discussion of the causes of this could be long and still not give us any further insight into the etiology in our case. However, we will come back to this after mentioning the fifth group which is:

5. Other possible causes of uterine bleeding; such as syphilis, simple ulcerations, tuberculosis, etc. In the case of tuberculosis, we are given just enough information to make us want to make this diagnosis, and still we have nothing concrete. It is true that this disease more often causes amenorrhea but involvement of the endometrium could cause ulceration and chronic bleeding. Moreover, it is well known that tubal disease may cause bleeding; hence the tubercular condition might remain in the tubes and still give uterine hemorrhage. However, without a chest x-ray, without a biopsy of the endometrium, without smears or culture of the uterine discharge. I cannot guess at a diagnosis of endometrial tuberculosis. In the case of tubal tuberculosis the evidence is much stronger if we are to rely on the history.

Now to get back to functional bleeding, we must mention the possibility of hypothyroidism. Here we are given a lead that the patient was overweight. A single plus 1% Basal metabolic reading tells us nothing because one basal metabolism may be very misleading. The patient might have been just apprehensive enough to increase her rate to normal when it really was low. Therefore I think that hypothyroidism is a possibility in this case. We may have bleeding as a result of disturbed function of the ovaries. There may or may not be ovarian tumors in such a case for many women in their late thirties have bleeding probably due to waning ovarian activity. Menopausal bleeding is very common, although in many of these cases small endometrial fibroids can be found.

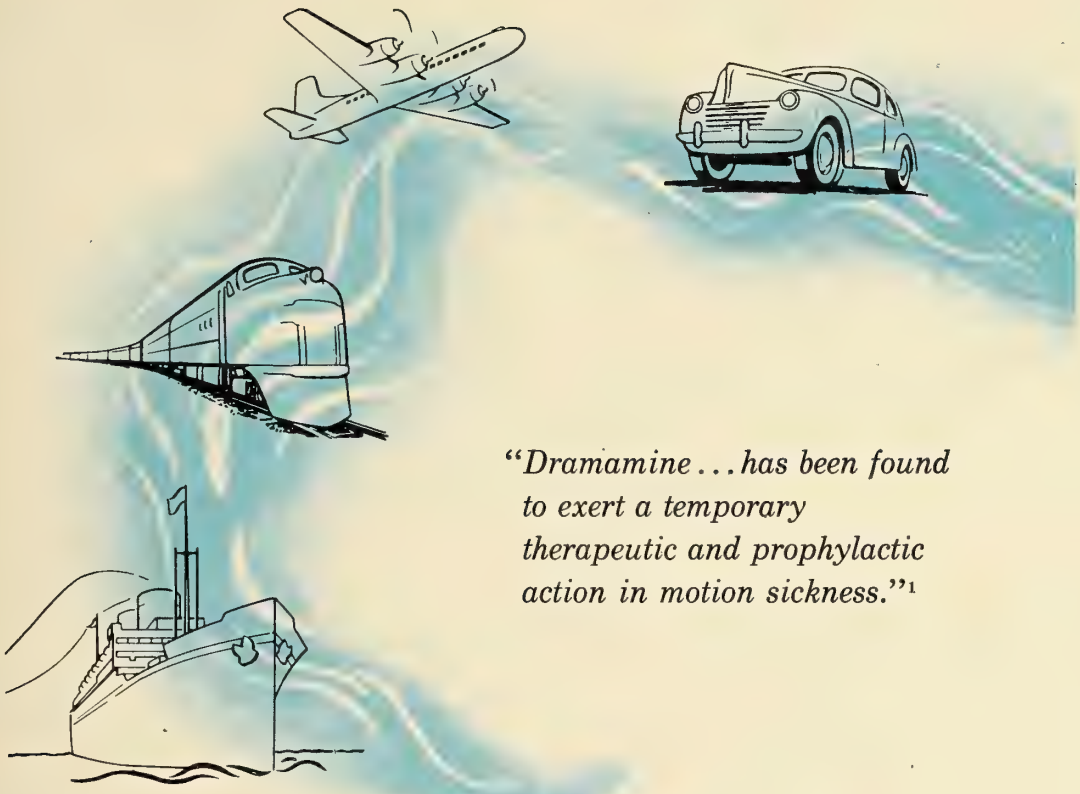
In conclusion, we do not have enough information to make a positive diagnosis in this case except to say the woman had metrorrhagia, which was probably accompanied by an endometrial hyperplasia.

DIAGNOSES

1. Tuberculosis of the remaining tube and ovaries, or
2. Submucus fibroids, or
3. Hypothyroidism, or
4. Any combination of these.

DIFFERENTIAL DIAGNOSIS

Dr. Fred A. Simmons: Since this is a teaching clinic, I am going to mention a few points that might be instructive regardless of what the diagnosis may be. In any patient who is bleeding, no matter what age, we should include the tests that are available today for the ruling out of malignant disease. The most frequently prac-



"Dramamine . . . has been found to exert a temporary therapeutic and prophylactic action in motion sickness."[1]

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Unusually satisfactory results have been obtained with Dramamine* (brand of dimenhydrinate) as a prophylactic or active therapeutic agent for the relief of nausea, vomiting or dizziness, which many individuals experience in travelling by ship, airplane, train and other vehicles.

1. Council on Pharmacy & Chemistry: New and Non-official Remedies, 1950, Philadelphia, J. B. Lippincott Co., 1950, p. 460.

*Trademark of G. D. Searle & Co., Chicago 80, Ill.

SEARLE RESEARCH IN THE SERVICE OF MEDICINE

ticed and probably the most accurate test at the moment is a diagnostic dilatation and curettage including cervical biopsy. We also have a fairly accurate test, the vaginal smear, which should have been carried out on this patient.[1] The laboratory has now studied vaginal smears from over 1200 cases, with an error of only 4 per cent in 95 cases of proved cancer. The point I am making is that anyone with this history should have cancer ruled out. I assume that this was probably the operation that they intended to do. I should also like to point out that in handling patients with profuse flowing at thirty-six years of age, a dilatation and curettage might better be carried out before giving any endocrine preparation. The assumption that Antophysin regulated the menstrual cycle implies that it was on an endocrine basis, but malignancy still cannot be ruled out. Antophysin is a proprietary name for chorionic gonadotropin.

That the patient had tuberculosis is quite likely in view of the family history and because of the reported tuberculous tube removed at the age of twenty. I believe that the general opinion of gynecologists in most parts of the country is that the proper treatment for such a condition, if it really were a tuberculous tube, is radical surgery, which would include removal of the uterus and both tubes and ovaries, since the process is apparently a hematogenous infection. This patient, according to the record, had no other signs of tuberculosis, and I rather doubt that she had it. I question then the pathological report of the operation at twenty years of age. Another thing that bothered me was that from the physical findings presented here I was unable to determine whether the patient had been married and whether she had ever borne children. It is fair to point out that the pelvic examination should include some comment whether the patient had a virginal or multiparous introitus.

Dr .Benjamin Castleman: The record merely states that the patient was unmarried.

Dr. Simmons: This fact does not help me unless it is fair to assume that she was a virgin, in which case I shall not go into the possibility of inflammatory disease other than tuberculosis. Of course, irregular bleeding of this nature can be due to gonorrhea and its sequelae. A pelvic examination should also include inspection of the cervix. All that may have been left out for the sake of brevity.

In summary, I am inclined to consider the tuberculous history and findings in the tubes to be irrelevant, although I cannot rule out tuberculous endometritis as the cause of the trouble. I am inclined to think that she did not have a carcinoma, because she had lived so long with a history of bleeding. If we can believe the menstrual-cycle history, the amenorrhea followed by profuse flow is the perfect picture of functional uterine bleeding, metropathia hemorrhagica, endometrial hyperplasia or whatever you want to call it.

Metropathia hemorrhagica is a term applied to a specific type of functional uterine bleeding characterized by a state of continuous estrinism with hypoprogestinism, according to Albright.[2] It is frequently seen in women with general debility regardless of age, presenting itself as alternating amenorrhea followed by continuous flowing, usually without molimen and dysmenorrhea, which may have been present in the patient's normal menstrual cycle. Pathologically the endometrium is markedly thickened, with deep glands having the "Swiss cheese" appearance characteristic of the estrin effect.

Endometrial hyperplasia or what I prefer to call "endometrial dysplasia" is the pathological term applied to the clinical state described above. Functional uterine bleeding or dysfunction of uterine bleeding refers to the abnormal state of flow, with or without amenorrhea, not precipitated by organic pathological disease and is a convenient pigeonhole for cataloguing vague irregular states of uterine bleeding.

I think that on the whole it is wise to suggest the need for diagnostic dilatation and curettage and biopsy. I shall make a diagnosis of endometrial hyperplasia on an endocrine basis; possibly there was a benign endometrial polyp.

Dr. Francis M. Ingersoll: I agree entirely with the diagnosis of metropathia hemorrhagica associated with a hyperplastic endometrium; however, we often see patients with the same history in whom the endometrium is atrophic rather than hyperplastic. Apparently about 20 to 30 per cent of them originally had an overfunctioning endometrium.

CLINICAL DIAGNOSIS

Metropathia hemorrhagica.

DR. SIMMON'S DIAGNOSIS

Endometrial hyperplasia (metropathia hemorrhagica)?

ANATOMICAL DIAGNOSIS

Tuberculous salpingitis and endometritis.

PATHOLOGICAL DISCUSSION

Dr. Castleman: The operation was a curettage and a large amount of endometrium was removed. The diagnosis on microscopic examination proved to be tuberculosis. Following that operation a laparotomy was performed and the other tube and uterus were removed. We found tuberculosis in both the uterus and tube.

Dr. Ingersoll: Did they take out the cervix? I remember one case in this hospital in which someone first removed one tube, then at a subsequent operation took out the other tube and did a supravaginal hysterectomy and finally did a cervicectomy for tuberculosis.

Dr. Castleman: The cervix was removed in this case.

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1. Meigs, J. V., et al. Value of vaginal smear in diagnosis of uterine cancer. Surg., Cynec. & Obst. 77:449-461. 1943.
2. Albright, F. Metropathia hemorrhagica. Main M. J. 29: 235-238, 1938.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

THE ARIZONA NAMES which one finds in the program for the San Francisco A.M.A. meeting include several repeaters, and others whose names have not appeared there before. . . . Jesse Hamer of Phoenix, the Arizona delegate, is head man of the Council on Medical Service. O. J. Farness of Tucson is discussing a subject on which he published years ago (coccidioidomyco sis). James Whitelaw of Phoenix discusses a paper on prostatic massage. Hill, Holbrook, Kent and Stephens again have an exhibit on rheumatoid arthritis. . . . There should be enough unsolved problems, either indigenous or imported, so that someone from Arizona could give an original paper sometime (and publish it in Arizona Medicine).

THERE IS A BALM IN (OR NEAR) GILEAD. Recent reports seem to confirm the value of khellin (now called "visammin") for angina pectoris, chronic cor pulmonale, and, to a lesser extent, for episodes of bronchial asthma. . . . It was mentioned in this column more than a year ago, after it was described by an Egyptian physician. The material comes from the khella plant which grows wild in the eastern Mediterranean countries. Possibly in Gilead.

The passing of DR. ADOLF MEYER, emeritus professor of psychiatry at Johns Hopkins, calls attention to a fabulous career. . . . Among his many achievements was the invention of a subject ("psychobiology"), and also its terminology. The Bostonian comment that the "Cabots speak only to Lowells" was once paraphrased to "Harvard speaks only to Hopkins." This was no longer possible after Dr. Meyers' words came into use in the Hopkins' lectures, since Harvard couldn't understand Hopkins.

The notorious peripatetic case of DIAPHRAGMATIC FLUTTER has turned up again in the J.A.M.A. He has been reported at least four times, and most recently from the Virginia-Georgia-Florida section. . . . Time was (about 1945) when he was seen in Arizona, and formed the basis for a medical society report. Several civilian physicians and those at the V. A. Hospital were able to add to the picture, since the poor fellow subsisted on his abnormality, and moved at frequent intervals. . . . The price he has paid is the numerous cervical scars of attempted phrenic operations.

A relief for MIGRAINE may be possible if the results of Marcussen and Wolff are transposed to a larger series. . . . It won't remove the cause, but they say that if a carbon dioxide oxygen mixture is given three times for five minutes each when the aura gives warning, the headache will be prevented. . . . The allergic, endocrine, autonomic, and psychogenic aspects must then be considered in each case, and non-migrainous conditions be excluded.

Brief COMMENTS which we have heard ABOUT THE PROGRAMS of the American Trudeau Society and the National Tuberculosis Association in Washington, D. C., and the drug conference of the Veterans Administration at St. Louis,—The U. S. P. H. S. favors the slow further experimental use of BCG, in the face of demands to enlarge its usage. . . . TB-1 is toxic, and its trial will be limited by the V. A. . . . The hemagglutination test of Middlebrook and Dubos may help in diagnosis, but it is not completely assayed. . . . Silica can cause BCG to produce progressive tuberculosis in animals (as it has for other nonvirulent strains), but the bacilli remain un-

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changed and avirulent when they are subinoculated. . . . The tendency to be conservative in the use of intrapleural pneumothorax has become fairly generalized. . . . Removal of the parietal pleura during a pneumonectomy may result in less frequent empyema. . . . The effect of streptomycin is greatest in the first six weeks, and daily use of one gram seems the best program. A PAS drug, probably sodium, should always be given with any streptomycin drug. The discontinuous use of the drugs has certain proponents. . . . The extra-pleural operation, with lucite spheres, is still of possible value when done right.

TITLE OF A BOOK LONG OVERDUE—"The Mammalian Adrenal Gland," by Geoffrey Bourne. But also "The Adrenal Gland" by Hartman and Brownell. . . . To say nothing of a book by Gordon and Katsh on the same subject.

Arizona and American Medicine has had glimpses of the avocation of DR. PHILIP CORLISS of Somerton. . . . The local folks know him as a good physician and an avid gardener. He has written in ARIZONA MEDICINE on "Floriculture for the Doctor and Patient," and spoken before the Art Association of the A. M. A. on the same subject. . . . He is internationally known, however, for his 300 varieties of iris, for his new types of iris and daylilies—all grown in the supposedly forbidding alkali soil. . . . His experiments have been reported in numerous garden magazines and (to those who are ignorant rather than esoteric) the journal of the Hemerocallis Society.

A modern MOBILE STRETCHER (surgical cart) is arranged so that the top moves to one side and gently tilts toward the bed. . . . A patient may be transferred from cart to bed by one nurse, with the turn of a control lever, and without the usual lifting and hauling. . . . It also can assume the Trendelenburg and Fowler positions, and carries an attachment for holding an I. V. bottle. No coca colas (so far).

Chambers of Commerce should consider sending out copies of United States maps containing the GEOGRAPHIC INCIDENCE OF FALL POLLEN. . . . One could fudge a bit on the amount in a few other states, but ARIZONA looks like a wonderful haven compared with the midwest, east and Texas. . . . Combine this with the scanty mold spores, lesser bacterial flora, absence of protein housedust, etcetera, in Arizona, and one could fill out a whole year of protection. An allergic person often needs only a little bit less of each—plus happiness.

EYEGLASS DEPARTMENT. — (This section seems to have as big a future as "South Pacific"). The latest suggestion to prevent fogging of glasses is the simplest, though not guaranteed, and comes from the "Dental Digest"—clean the glasses; apply a small amount of solid or liquid soap to the lenses; polish when DRY with a piece of paper tissue. . . No steaming.

It hardly seems fair to lovers of Pocohontas, Uncas, and Hiawatha to mention the DRAWINGS OF SOUTHWESTERN INDIANS in Abbott's "What's New" for May 1950. . . . Few paintings have been more graphic than "The Problems of Indian Medical Care" which have been composed for that magazine by Frede Vidar, but few have been more sad and depressing. . . . It is a tragic, colorful, impressionistic documentary—and maybe it will do some good, as well as shock and entertain.

One of the slickest MEASUREMENTS OF DRUG EFFECT was published in the Mayo "Proceedings" last fall by Karlson and Feldman, and mentioned here later. . . . Now Karlson and Feldman, plus Gainer, have done it again. . . . In order to determine the effect of TB-1 on guinea pigs, animals in six groups were infected with a standard strain of tubercle bacillus and the results were charted according to the estimates of disease in various organs (a method which they have used for years). . . . On the thirtieth day after inoculation all groups except the control group were treated with one of several regimens. The effect of a full dose of streptomycin was compared with a sub-optimal dose of streptomycin, wtih TB-1 in the diet, and with TB-1 plus a suboptimal dose of streptomycin. . . . The results seem quite precise. Streptomycin is still the best drug, but TB-1 is of value by itself, and is quite valuable when it combines with the smaller doses of streptomycin. . . . We now have several helpful anti-tuberculosis drugs, but the toxicity of TB-1 for humans is still such as requires close observation.

THE HOSPITAL WORM TURNS—When an employees' union struck against a children's hospital in Oakland, California, the hospital board took quick action. Substitutes were called in from among 3,000 auxiliary helpers, and the housekeeping, kitchen and laundry jobs were filled without a hesitation. . . . A letter was sent to other regional hospitals, warning that the strike was a first move in a nation-wide drive, and that the demands included a contract. . . The unionization of hospitals is certainly a point to be decided only after clear thought—especially if one must turn over the care of the sick to a group which is willing to use compulsion.

DR. LOUIS DIAMOND of Boston, chief of the national Blood Bank program, gave us an assist last year in describing exchange transfusions for erythroblastosis. . . . He has now been involved

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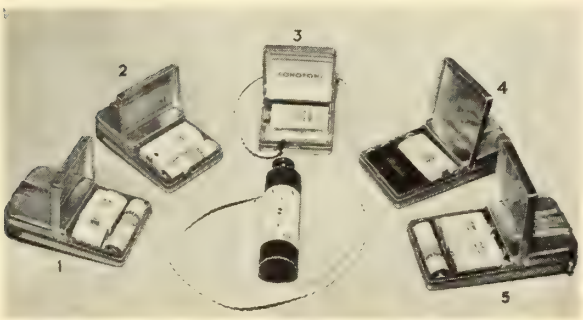
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in a neat piece of medical detective work. With several colleagues, he found that female babies have a better prognosis with the disease than males. They then studied the list of donors, and found that although the mortality in general was 15 per cent, NO DEATHS OCCURRED IN THE GROUP WHICH HAD RECEIVED BLOOD ONLY FROM WOMEN. . . . Apparently the blood of women contains a beneficial substance, and a later series showed the same results when blood from females was used.

The Medical profession in Los Angeles is getting excited over two programs which Arizona saw and used in 1948 and '49. . . . A referendum is being presented on the establishment of a "BUREAU OF MEDICAL ECONOMICS," a la the Alameda County Medical Society. (It will be interesting to see whether this will turn into a simple bill-collecting agency). . . . The report of a BLOOD BANK COMMITTEE has been accepted by the council of L. A. C. M. A. They hope to establish a cooperation between the Red Cross, the society, and the hospital association. (They have the slow chore of arranging banks in a huge area containing 3,000,000 people, where Arizona was able to do so in two areas within a period of months).

This is the time of the year when news from a columnist is a couple of months behind. The spring and early summer medical meetings have either given the Word direct, or have been quoted in the newspapers and news weeklies. . . Up to this writing in early June, the USUAL ARIZONA MEDICAL PROBLEMS have not been substantially modified. The anti-arthritis drugs are still incompletely defined, though progress is announced in manufacture; the anti-tuberculosis drugs are about status quo ante last month's column; the antibiotics are more plentiful and less costly, but not much different; surgery and the specialties have only consolidated their gains; and no one has produced a cure for emphysema or desert fever.... The second paragraph had something to say about cor pulmonale, though, and even arteriosclerosis is getting attention.

The routine EXAMINATION OF VARIOUS TISSUES AND AREAS of the body has spread from the blood to the lungs to the stomach, and the end is not yet. . . . That is, it was not yet in "sight" until an article by Greer in the Medical Annals of the District of Columbia. . . . Dr. Greer recommends ROUTINE PROCTOSCOPY, and backs up his suggestion with data which show that 3.9 per cent of 747 patients showed cancerous or pre-cancerous lesions. . . . Few procedures would seem to have less chance of becoming truly popular.

THE AMERICAN LEGION AND THE HOOVER COMMISSION REPORT

The American Legion Department of Arizona,
Phoenix, Arizona

The American Legion, as you know, is dedicated to God and Country.

Probably never before in our long and proud history have we of the Legion been put to a more severe test in living up to that sacred dedication than we are today.

Do not believe those who would tell you that The American Legion is a "pressure group" . . interested only in putting all veterans on a "gravy train." That is either a vicious lie or an accusation based upon ignorance of the true ideals of The American Legion.

True, The American Legion's obligation is to fight for the rights and proper privileges of our disabled and needy veterans. It always has been . . . and it always will be.

But The American Legion today stands in the forefront among all patriotic organizations in the United States in the cause of Americanism. It is in the interest of *Americanism* . . . Americanism and *true national economy* that I have the pleasure of appearing before you today.

First of all, permit me to state that The American Legion is *not* opposed to the Hoover Commssion Report in its entirety.

The American Legion . . . from its National Commander down to its more than three million post members . . . is wholeheartedly in favor of economy in government . . . *good, sound, commonsense economy.* After all, American Legionnaires are citizens . . . and *just as much taxpayers as any other good American citizens.*

The conception that The American Legion is opposed to the complete Hoover Commission Report is wholly erroneous. Much of it may prove of real assistance in bringing about economy. Some of it already has.

The American Legion *does*, however, oppose *most strenuously* that section of the Hoover Report which would dismember the Veterans Administration . . . which has proven itself for more than twenty years to be the most efficient of all large government agencies . . . into five or more separate bureaus, some of them *purely experimental* and *certainly more costly to the taxpayers of the United States!*


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Many people seem either not to know . . . or to have forgotten . . . that the Veterans Administration was created by recommendation of Herbert Hoover himself when he was President of the United States.

Mr. Hoover, then President, said to the nation in 1929 that . . . in the interest of efficiency, economy, more uniform administration and better definition of national policies, the Veterans Bureau, the Pension Bureau and the National Home for Volunteer Soldiers should be brought together into a *single agency.*

So the Veterans Administration was created by Act of Congress on July 3, 1930, as *the last word in streamlined service to veterans!*

The Veterans Administration today is exactly what its name implies. It administers all laws relative to benefits or services to former members of the Armed Forces and their dependents. These include disability and death compensation . . . disability and death pensions . . . medical and hospital services . . . domiciliary care . . . U. S. Government and National Service Life Insurance . . . vocational rehabilitation and education . . . guaranty of loans for purchase of homes, farms, business properties . . . *everything* applying to veterans.

The wisdom . . . and the *economy* . . . of creating the Veterans Administration as the *one* agency to administer all veteran benefits has been proven to the complete satisfaction of the government and the people of the United States.

During thirty years of careful scrutiny by and cooperation of The American Legion, the Veterans Administration has been developed and so operated that . . . in spite of some existing imperfections . . . it stands alone today among all large government agencies as the one not subject to political pressure and free from pork barrel raids.

That economies even now may be effected in the Veterans Administration we do not for one moment deny. But from years and years of experience and close cooperation with this great one-stop agency, The American Legion . . . which itself fought alongside then President Hoover for consolidation of a number of bureaus into one agency, both in the name of economy and efficiency . . . The American Legion maintains that further economies can best be brought about *within the present* set-up of the Veterans Administration.

But what has the Hoover Commission suggested? It proposes that the major functions of the Veterans Administration be split up into *five or more agencies!*

It recommends that hospital and medical attention be turned over to a new experimental bureau . . . a *United Medical Administration* . . . that hospital construction be transferred to the *Department of the Interior* . . . that all insurance matters be handled by another new and experimental agency . . . a *Veterans Insurance Corporation* . . . that home loans be taken care of by a Housing and Home Finance Agency . . . and that only the lesser veteran benefits remain under the charge of the Veterans Administration.

(Ladies and) Gentlemen . . . such dismemberment of our Veterans Administration is *unthinkable!*

Dismembering of this most efficient of all large government agencies into five separate federal bureaus, as proposed, would not only be a stunning blow to our veterans . . . particularly the disabled.

It ALSO would entail an *additional drain* on America's already over-burdened *taxpayers!*

I ask you, (Ladies and) gentlemen . . . *where could economy be effected in such a set-up?*

As I have stated, The American Legion has proven itself for more than thirty years the most experienced group in the world on veteran affairs. The American Legion's rehabilitation experts, its national, state and post officers and members have labored through these three decades in building up a most efficient Veterans Administration.

BUT . . . the suggestion that the Veterans Administration be vivisected was made without any consultation with either The American Legion or any other recognized veterans organization.

Four times The American Legion asked the Hoover Commission for permission to present the Legion's side of the case. But no such permission ever was granted.

The very fact that all members of the Hoover Commission itself were not in accord . . . and that neither the group of insurance executives nor a big engineering firm called in by the Hoover Task Force would recommend such changes as have been proposed . . . is evidence in itself of the folly of the portion of the reorganization

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plan that would dismember the Veterans Administration.

Permit me to read the following from the report of the Trundle Engineering Company of Cleveland, Ohio, to the Hoover Commission:

I quote . . . "From the very beginning the Veterans Administration has been the beneficiary of the advice and constructive criticism of organized veterans groups (of which The American Legion is by far the largest, with a membership of more than three million) who have acted as spokesmen and representatives of ex-servicemen and their dependents. Formal recognition was extended to these groups by congressional enactment in 1936, naming several national organizations, and authorizing the Administrator to add others at his discretion.

"The full-time representatives of these accredited organizations do valuable work in connection with cases that otherwise would have to be done by Veterans Administration personnel. As intermediary counsel and later as advocate, they save time for the contact officers, the rating boards, and adjudicators.

"Examination of this program indicates that it is sound both in intent and operation. * * * The Veterans Administration, representing the Government, acts as a judge in determining a veteran's entitlement to benefit. As a Claimant he is entitled to the assistance of an advocate fully familiar with the laws governing his rights. This need is met by these accredited representatives of recognized service organizations, who render this aid free of charge and with a minimum of self-interest.

"This policy of recognition offers a corollary benefit to the Veterans Administration as well as to the veterans themselves. The close working of its personnel with well-informed but independent groups serves to provide a source of constructive criticism of procedures, rulings, and possibly activities that is most wholesome. Service organizations through their executive officers in Washington and elsewhere maintain a vigilant watch over its activities and are not hesitant to express pertinent comment when it seems desirable. A number of the service organizations contribute materially to the operation of veteran affairs by appearing by invitation before congressional committees. They either advocate or oppose proposed measures and thus permit examination by the public as to the merit of such proposals."

Thus the Trundle firm, in its report, lauded The American Legion and other veterans organizations for the priceless service rendered by their rehabilitation experts to the Veterans Administration.

Would the United Medical Association, The Department of the Interior, The Veterans Insurance Corporation, the Housing and Home Finance Agency *and* the Veterans Administration all continue to utilize most beneficially this invaluable service?

Or would the *taxpayer* be saddled with the cost of such service?

We have mentioned the *five* bureaus into which it is suggested we *experiment* with veteran affairs, now handled efficiently by *one* established agency. Then what would we have?

The Hoover Commission proposes that the hospital care and medical treatment presently available to veterans, under the direction of the Veterans Administration, be taken over by a *new colossal federal agency.* It is to be known as the United Medical Administration and contains a cruel joker.

This *experimental bureau* would not render service exclusively to veterans.

Instead of the wise and efficient course demonstrated by the Veterans Administration through the years, the new agency would administer hospital care *also* for the Merchant Mariner, Civil Service employes, Army, Navy, Air Force and Marine Corps personnel and their dependents. This is definitely the beginning of an attempt to divorce the veteran from his identity as a veteran.

That's how this one change would affect the veteran. Now how will it affect you and me as taxpayers?

The creation of any new governmental agency, such as the proposed United Medical Association, inevitably would mean the creation of thousands of new jobs.

It would mean the training of many inexperienced new officials. This would require both time and money.

It would involve many duplicating functions . . . such as existed in the dark 1920's . . . with faint hope that *any* good would result.

In such a program there can be no economy!

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be accounted for on a morning report, a sick book ,a clothing report and a pay record, but for the active serviceman in the United Medical Administration hospital *all* these records must be accurately kept.

The handling of some five or six classes of patients would make the paper work in United Medical Administration hospitals chaotic.

Such ramifications would not work for economy!

They would be stupendous and costly to the taxpayer!

Of all government agencies, only one is familiar with the needs of veteran hospital construction and experienced in this highly technical work . . . the Veterans Administration. If recommendations of the Hoover Commission were followed, this all-important and specialized work would be transferred to the Department of the Interior.

Veterans Administration hospitals have been and are being built for less money per cubic foot than those constructed by the Army and Navy and compare favorably with private hospital construction. Certainly the *taxpayer* could not benefit by the transfer of this work to the Department of the Interior.

The Hoover Commission states that the Insurance Division of the Veterans Administration is inefficient. Yet, it proposes to correct this alleged inefficiency by creating an additional experimental corporation to handle this tremendous job . . . a new Veterans' Insurance Corporation.

The Hoover Commission wants to take from the Veterans Administration the handling of all home loans made possible under the G. I. Bill of Rights, which the American Legion fought so tirelessly to enact into law. The commission would give this part of the Veterans Administration's responsibility to yet another federal outfit . . . the Housing and Home Finance Agency. The commission's failure to make mention of administration of farm and business loans remain unexplained. *The natural inference is that* additional complications may result from a further division of veteran loans into still other agencies.

Should the recommendations of the Hoover Commission be adopted, there would remain in the hollow shell of the Veterans Administration only a relatively small part of its present services, including:

A Veterans' Benefit Service, charged with administration of pensions, retirement benefits, disability compensation and guardianships.

A Readjustment Service, to administer the vocational rehabilitation, education and readjustment allowance programs, as well as the certification of veterans for loan guaranties.

The Office of Legislation would be consolidated with that of the General Counsel.

If such an emasculation should conceivably be adopted by the Congress, the "pushing around" plight of our veterans in 1920 would be only a circumstance to the bewildering chaos into which our veterans of today and tomorrow would again be plunged.

The American Legion will fight to the last ditch to prevent a recurrence of the infamous Economy Act of 1933. That part of the Hoover Report dealing with veterans proposes to repeat the Economy Act on an even greater scale. It would divorce all veterans from their identity as veterans, dismember the Veterans Administration, take their hospitals from bed-ridden veterans, deprive all veterans of preference in government employment, leave the nineteen million veterans of the nation without a unified service agency, and all centralized government responsibility for the welfare and rights of veterans, and leave the dependents of those who fell in battle at the mercy of bureaucratic red tape!

The American Legion contends that the cost of rehabilitating the *human* wreckage of war is as much a part of the cost of waging war as is the building of battleships, tanks, planes and guns. Those weapons are paid for in "*cash on the barrel-head.*" The government leans over backward to see that every wartime contractor gets a square deal. But the *human* costs of war are "put on the cuff." They constitute a sacred obligation of the nation. This debt cannot be honorably discounted or evaded by simply writing it off as a so-called economy measure.

A so-called economy measure that cannot conceivably mean *economy!*

How many of you recall the plight of our veterans immediately following World War I?

Back in 1920 The American Legion discovered that the veteran was far from receiving the services a grateful American people had voted for him. Then a labyrinth of agencies was going through the motions of trying to serve the veteran. The result was overlapping, inefficiencies and tremendous expense. For his various rights

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the veteran was pushed around from the Pension Bureau to the Public Health Service, to the War Risk Insurance Corporation, to the Federal Board for Vocational Education, and back again.

Because of this chaos, President Harding appointed a committee of ten prominent Americans to study this deplorable situation and recommend action. This committee, headed by Brig. Gen. Charles G. Dawes . . . himself later vice-president of the United States . . . recommended that all services to veterans be placed in one agency. From this report came the Veterans' Bureau, established by law in 1921. The Dawes committee said in part:

I quote: "It cannot be too strongly emphasized that the present deplorable failure on the part of the government to properly care for the disabled veterans is due in large part to an imperfect organization of governmental effort. There is no one in control of the whole situation. Independent agencies by mutual agreement now endeavor to co-ordinate their action, but in such efforts the joint action is too often modified by minor considerations, and there is always lacking that complete cooperation which is incident to a powerful superimposed authority. No emergency of war itself was greater than is the emergency which confronts the nation in its duty to care for those disabled in its service and now neglected."

Then, upon the recommendation of *President* Hoover, came the further consolidation resulting in the creation of the Veterans Administration in 1930.

Now comes the recommendation of Mr. Hoover's Commission that this great institution . . . the Veterans Administration . . . the magnificent monument to The American Legion and other veterans . . . be torn limb from limb.

Mr. Hoover's Task Force must have failed to study . . . *and it certainly failed to heed* . . . the bitter experience of the past. The Hoover recommendation of dismemberment, which would return veteran affairs to the chaotic conditions of 1920, is not consistent with the usual sound thinking of this great American.

Just suppose General Motors was told: "You may retain your administrative functions, but you will have to divorce yourself from the other operations of your corporation. Ford will take over your production. Engineering will go to Studebaker. Your distribution will be conducted

by Chrysler. And your sales can be handled by Kaiser-Fraser."

That is substantially what the Hoover Commission recommends so far as the Veterans Administration is concerned.

In such a situation, could you possibly expect more efficiency . . . more economy?

I declare emphatically that, The American Legion does not oppose the Hoover Report verbatim.

The American Legion . . . as much as any other patriotic group . . . insists upon economy.

But we do maintain . . . that that part of the Hoover Report dealing with vetetran affairs *does not mean economy:* It will *not reduce taxes.*

It means a *house divided* . . . five *experiments* to replace one *success.*

It means *more agencies* . . . and *more taxes!*

And *that* is what *nobody* wants!

Arizona Blue Shield Blue Cross

A comprehensive, 23-page manual for Participating Physicians in the Arizona Blue Shield Medical Service Plan, which includes a revised schedule of benefits effective on June 15, was mailed early last month. The manual is designed for use both by the Participating Physician and his office staff.

Completed after months of research and preparation, the manual contains a general outline of the Blue Shield Plan, with descriptions of its corporate structure, management, and physician-subscriber relations; the services provided by the Plan and the exclusions in the contract; enrollment regulations; procedures for payments to physicians, and general information pertinent to the operation of the plan from the point of view of the Participating Physician.

In a foreword to the manual, the Blue Shield Board of Directors said, in part:

"Arizona Blue Shield is known to its thousands of subscribers as 'the Doctor's own Plan.' This is a good and accurate designation, for Blue Shield is truly our Plan. It was established by the Medical Profession of this State after long years of detailed study and planning. Its affairs are governed and its services guaranteed by members of our profession. Each Participating Physician is a vital part of the Plan. More than 94 per cent of the members of the Arizona Medical Association have registered as Participating Physicians.

"The establishment of Blue Shield has been positive proof of our interest in the welfare of the citizens of Arizona. . . . Blue Shield, by making available the best in medical care on a voluntary pre-payment basis is rendering a very real public service.

"The success of our Plan is largely dependent upon the understanding cooperation of each Participating Physician, and this cooperation can best be developed by a knowledge of the principles and practices which govern Plan operations . . . this manual . . . will be helpful in your contacts with the Blue Shield member and will assist greatly in building and keeping good public and subscriber relations."

* * *

The thirteenth printing of the roster of Arizona Blue Shield Participating Physicians, on June 1, listed the names of 610 physicians. Every county in the State was represented.

* * *

From the records:

Arizona Blue Shield enrollment stood at 58,720 as of May 31, a net gain of 6,883 members since the end of 1949. During all of 1949, Blue Shield paid out $302,994.57 to physicians for services to subscribers. The payments covered 5,425 cases. During the first five months of 1950, Blue Shield payments to physicians amounted to $182,138.50—for 3,542 cases.

Arizona Blue Cross had 109,832 members at the end of business on December 31, and 114,175 on May 31, a net gain of 4,343. During 1949, Blue Cross paid out to hospitals the sum of $912,674.13 for care of its members, the payments covering 14,355 cases. During the five months ending last May 31, Blue Cross paid to

hospitals in behalf of its members the sum of $445,841.52, for 6,626 cases.

On the national scene:

With the addition of 3,838,587 new members in 1949, national and Canadian enrollment in Blue Shield soared to 14,227,781, a recent count of noses revealed. The enrollment covers seventy-eight separate Blue Shield Plans.

The ninety Blue Cross Plans in the United States and Canada added 3,144,356 members during 1949, bringing the total enrollment at the year's end to 35,918,705.

That's a combined enrollment of well over 50,000,000 and, granted that there is much duplication of membership, it still seems fair to opine that 50,000,000 Americans who prefer the voluntary way in health care can't be wrong—any more than the proverbial 50,000,000 Frenchmen.

* * *

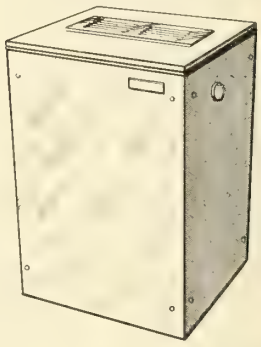
The new Williams Hospital, built and opened after years of cooperative effort in the northern Arizona community, was provisionally approved as A Blue Cross Member Hospital on June 14, bringing to twenty five the total of Blue Cross Hospitals in the State. The addition of the twenty beds in the Williams Hospital raised the total of beds in Blue Cross hospitals to 1,829. Four other Arizona hospitals have joined the Blue Cross ranks since January 1. They are Grand Canyon Hospital, 10 beds; Norman Hospital at Casa Grande, 17 beds; the Douglas Hospital of the Phelps Dodge Corporation, 35 beds, and Benson Hospital, 10 beds.



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Statement By Senator Robert A. Taft

The Proposal to create a Department of Health Education and Security is designed to carry out an idea that has been current for quite a while. In fact, I once introduced a Bill to establish a new department. The difficulty is that Health, Education, and Security are all different subjects. On the local level in cities they are entirely separate departments. The only respect in which they are grouped together in the present Federal Security Administration is that they all are matters in which the Federal interest is secondary and the matter of principal interest is aid to the States.

Last year a similar plan was presented, and it was defeated in Congress. It was defeated because it did not conform to the Hoover Plan. Hoover recommends setting up a Department of Education and Security. But he wants to put the Health Division in an entirely separate medical administration. That's been the great issue. The welfare people, like Oscar Ewing, want to run health as a kind of welfare service. The doctors and others feel that medical care and health is a special subject, which ought to be dealt with by people expert in the health field and not subject to welfare direction. Now, the difficulty with this plan is the same as the difficulty with the plan last year. It is true that it separates these three functions into separate departments under the secretary, but the secretary has an assistant secretary, and an under secretary, all of whom are likely to be welfare people, and then it isn't perfectly clear that all the health functions have to be assigned to the Surgeon General of the Public Health.

It seems to me that the plan has all the objections which the plan had last year; and, therefore, I should think under the same circumstances it is likely to be defeated primarily because it does not conform to the Hoover Plan, and, I may say, apparently because Oscar Ewing just would turn the Federal Security Administration into a Government Department and in turn make Oscar Ewing, instead of a Federal Security Administrator, a secretary in the Cabinet. There is a good deal of resentment in Congress about that, too, which is likely to raise more political objection, perhaps, to the plans than the one based entirely on logic.

American Medical Association,
Washington Office

CENSUS REPORT SHOWS TIGHTENING UP OF STATE FINANCES.

One underlying reason for states' dependence on federal grants is highlighted in a new Census Bureau report. It shows a reversal of budget trends in 1949; in 1948 and back through the war years income topped expenditures, but this was reversed for the first time in 1949. In that year *income dropped below expenditures by 7.2 per cent.* Increased revenue of 9.6 per cent was overbalanced by a 13.3 per cent increase in expenditures. Expressed in another way, in 1948 income exceeded outgo in 32 states, but in 1949 outgo exceeded income in 33 states. (This *does not mean* the 33 states are in debt; only nine states report their liabilities exceed their assets.)

This reversal took place in supite of the fact that included in the states' revenue are federal grants, which *increased approximately 20 per cent* between 1948 and 1949. The figures are $1,399,000,000 U. S. grants to states in 1948 and $1,705,000,000 in 1949. (Direct U. S. payments to individuals are not included in their tabulation. In 1949 these totaled an additional $3,638,-921,248.)

One state, Mississippi, received more money back from the federal government in grants *than it paid in federal taxes* (107 per cent of its tax payments). Other states with a high return ratio are Alabama, 51 per cent return; New Mexico, 58 per cent; Wyoming, 51 per cent; North Dakota, 47 per cent. On the other end of the scale are Delaware with a three per cent return and New York with five per cent. Other low-return states are Illinois, 7.8 per cent; Michigan, 7.55; Ohio, 8.62 and Virginia, 9.72.

A high percentage of federal grants are in the health services field; hospitals, disease control programs, research, aid to the handicapped, old age assistance.

AMERICAN COLLEGE OF PHYSICIANS ANNOUNCES ITS ANNUAL SESSION AT ST. LOUIS APRIL 9-13, 1951

The American College of Physicians will conduct its 32nd Annual Session at St. Louis, Mo., April 9-13, inclusive, 1951. Dr. Ralph Kinsella of St. Louis is the General Chairman and will be responsible for local arrangements and for the program of Clinics and Panel Discussions. Dr. William S. Middleton, President of the Col-

lege, Madison, Wis., will be in charge of the program of Morning Lectures and afternoon General Sessions.

Secretaries of medical societies are especially asked to note these dates and, in arranging meeting dates of their societies ,to avoid conflicts with the College Meeting for obvious mutual benefits.

E. R. LOVELAND,
Executive Secretary.

P. S. It may also be noted that the 1952 Annual Session of the College will be held at Cleveland, Ohio, April 21-25, 1952.

EXCERPTS FROM EDITORIAL IN MAY 15TH ISSUE OF THE UNITED MINE WORKERS' JOURNAL

On the medical question, labor had better begin to think, because if resentment of the voters to National medicine in one-third of the States proves as beneficial to reactionary candidates as in the case of Smathers, the problem of repealing the Taft-Hartley Law—so long as both are linked in the Truman program—will be three times as difficult.

Regardless of how lightly President Truman may seek to brush off the Pepper defeat, the fact remains that the over-all resentment against Pepper crystallized as a result of Pepper's all-out support of the Truman program.

Pepper had to bear the brunt of all the fault-finding levelled at the Brannan Plan, foreign aid, give-away money, point four, lowering of tariffs, Government extravagance, "Commie" influence in Government, Kansas City Graft, FEPC, Repeal of the Taft-Hartley Law and, of course, National medicine.

The heretofore unorganized vote, as a result of the Truman Medical Plan, the FEPC, the raging "Commie" publicity and bitterly contested Brannan Plan, was activated into resentful political action as never before—resulting in a record vote.

In 44 years of covering political campaigns in the Nation and in many States, your editor has never witnessed such effective and productive quiet solicitation of votes as demonstrated by Florida doctors, druggists, dentists, hospital staffs, insurance companies and pharmaceutical representatives, aided and abetted by other professional men.

Funds were quietly raised. Golf matches, poker games, bridge parties and every form of contact which could be conceived and arranged were executed by the medical, drug and hospital fraternity to convince the people that epidemics would be the order of the day, plus bankruptcy, in the event the proposed Truman Medical Plan —which Pepper was supporting—was enacted into law.

Generally speaking, the people in the East, North and West look upon Florida as a State of aged pensioners in need of medical attention that they cannot afford. This is only partially true as affecting the aged. But they do not constitute an appreciable percentage of the voters.

Pepper was up against an unreasoning wall of voters on this question and the more he said in support of National medical aid the more votes he lost.

Pinellas County (St. Petersburg) is the capital of Florida's retired pensioners, yet Smathers carried Pinellas County 18,244 to 15,906 for Pepper.

In contrast to the Pinellas County vote, live-wire, horse-and-dog-racing, night-club Dade County (Miami, Smathers' Home) — which Smathers said he could carry easily by 30,000 majority—was lost by Smathers, the vote being: Pepper 66,803, Smathers, 65,886, according to unofficial returns.

The labor vote showed up in Dade County, while the labor forces were soundly routed in Duval County (Jacksonville, Florida's only industrial city)—which was the fountainhead of money distribution to finance the Smathers campaign — the vote being: Smathers 42,412, Pepper 32,822.

Just how much money was spent in Smathers' behalf will never be known, but Florida campaigns in recent years have proven to be an orgy of spending.

Although the State population does not exceed 2,500,000, belated reports and confessions show that a total of more than $550,000 was spent in behalf of the successful Gubernatorial candidate in 1948—and, in addition, a greater total was spent in behalf of the candidates in opposition.

The Smathers-Pepper campaign was of longer duration than the Gubernatorial contest and the Smathers newspaper and radio advertising far exceeded that of the campaign for governor—all of which might furnish a clue of how the money bags were loosened up in behalf of Smathers.

The result would be quite interesting and enlightening if some political writer with a flare for statistics would compute the advertising expenditures of the Smathers-Pepper campaigns.

As an aftermath of the campaign, leaders of the CIO and the AFL are busy villifying each other in a name-calling contest in which each side charges the other with failure to properly support Pepper. The railroaders seem to be taking the result with complacency.

After all is said and done, a simple analysis proves that the Truman program—plus past association with "Commie" leaders — defeated Pepper.

STATEMENT BY JAMES E. PAULLIN, M. D., ON H. R. 6000 SUBMITTED TO THE SENATE COMMITTEE ON FINANCE

February 28, 1950

To identify myself, I am James Edgar Paullin, M. D., of Atlanta, Georgia, a duly licensed physician engaged in the active practice of medicine in Atlanta for the past 40 years. At the same time I have been a part time teacher in the Medical Department of Emory University. I am a member in good standing of our local, state, and national medical societies, and during my years in practice, at one time or another, I have held offices of responsibility in these organizations. I desire to appear before your Committee as a member of the medical profession opposing in particular that part of H. R. 6000, Section 107, which relates to the inclusion among its provisions of total and permanent disability insurance benefits.

In reading the amendments which have been offered to the Social Security Act under H. R. 6000 I was amazed at the recommendations for increased appropriations in money which are requested to be given as benefits under the various titles of the bill, as well as to increase the numbers concerned. So far as I could tell, the requests for money to support this program were increased tremendously, none were eliminated, and none were decreased. Naturally the question arose in my mind as to how all of these benefits could be undertaken without increasing the tax burden on the productivity of our citizens to meet the increasing demands for assistance, and why our citizens are willing to allow Uncle Sam to assume responsibility for their support, education, health, housing, and retirement without the necessity of any effort on their part to produce income from which these taxes are to be paid. I have not given all provisions of the Act careful study, and if I had I would not be competent to offer valid testimony concerning them. However, I do have experience and observations concerning total and permanent disability, which is Section 107 in H. R. 6000, and which will involve the expenditure of millions upon millions of dollars as a part of the Social Security program.

I do not believe that anyone would oppose rendering assistance to those in dire distress or who are in great need and who are not financially able to help themselves, either because of sickness, injury, or disease. However, the actual need must be established, with a *primary* interest centered on a program which would rehabilitate the person or persons disabled in an effort to make them self-supporting members of society. This must be the chief purpose for which contributions are made for aiding this group of our citizens. To those of us who have been in the active practice of medicine for any considerable number of years, we are aware that there are many psychological factors demanding consideration in any discussion of the determination of the presence or absence of disability.

First, if a tax is levied for the purpose of furnishing total and permanent disability insurance for an individual, and if the individual pays for it for a certain length of time, he develops the feeling that he has a right, under certain circumstances, to demand the benefits which he has purchased. In other words, there is an honest psychological approach on the part of the person with disability insurance to demand support even though he is conscious that he is not totally and permanently disabled. If there is written into the law a clear statement defining disability, either total or permanent, and if the insured does not completely quality for these benefits, if he sees or hears of some one with no more disability than he has drawing benefits for disability, he makes an earnest effort to effect total disability in order to collect his pay check.

The second psychological effect of disability

is that the patient who claims disability benefits makes an effort to satisfy his own conscience as to the justice of his demands, and he develops subjective symptoms of disease which no one can demonstrate as non-existent. Particularly is this true with certain types of individuals who are, to some extent, emotionally unstable. Such a condition occurs in a higher percentage among women than among men. We as physicians know that disappointments, frustrations, emotional instability, ill-adjusted family life, and various other situational and environmental difficulties will cause in some people a reaction of *defeatism,* with the development of more subjective complaints, which the patient cannot adequately describe, if given an opportunity, in an all day rehearsal of his ailments, and which, if they were the result of disease, would prove fatal before the narrative could be finished.

Third, if a person is insured by the Federal Government against disability and can draw a nice pay check each month for his disability, in a complaining individual as above described, the stage is set for the making of a complete, permanent, 14-carat invalid who is totally disabled, and who will resist with vehemence any and all efforts toward rehabilitation.

Within the past 20 years I think all of us have become conscious that the present trend of society is leading to a steady and gradual weakening, and even disintegration, of our moral and spiritual consciousness, and with it, unfortunately, the deliberate surrendering of individual initiative, ambition, and a desire to succeed in any undertaking, for a paltry mess of pottage served by a paternalistic government. The development of this type of philosophy, among an otherwise healthy citizenship, weakens the very foundation of that type of citizen who has made this government possible, and will greatly increase the demands for government benefits which, in times of stress and strain, will be greatly increased and force our people into a moral state of indolence, and our national economy into a state of bankruptcy.

I ask those of you who visit among your constituents to observe the tremendous increase in the members of our population who are looking for a *position* and not for a job, a position they consider ornamental to a business without the assumption of any tremendous amount of responsibility, and which could be used to enhance the business because of their supposedly striking qualifications and their ability to draw a nice pay check. Those who seek a job are people who are willing to work, who glory in the accomplishment of a task, and who are happy to be productive. These are few in number. Evidence of this belief can be obtained by spending a few hours visiting any of the employment agencies.

Fourth, physicians have little sympathy with this point of view since they not only work "when willing and able, but also without a contract." They go on call both day and night, irrespective of a national emergency, to render service to the rich, to the poor, and to all of our citizens, regardless of race, creed, or religion. They are conscious of demands which are made upon them, and which will be increasingly made if the provisions of this Act are passed, for certification as to presence of total and permanent disability which does not exist. It takes a physician of considerable stamina to be able to resist some of these appeals. And sometimes they will not do so.

Some 20 or 25 years ago many large insurance companies issued policies on a great number of people, covering them for total and permanent disability. During prosperous times the insurance companies made money on this type of contract. When the sailing became a little rough, a great many physicians will recall, considerable numbers of patients so insured demanded to be classed as permanently and totally disabled so they could retire from business and receive a tax-free income which was sufficient for them to enjoy the art of living without any of the responsibilities, restrictions, or obligations connected with the honorable profession of work. I am not referring in this statement to those patients who obviously suffered a disability which prevented them from working. But I am referring to that large group which developed only subjective complaints, such as nervous disorders, headaches, backaches, rheumatism, angina pectoris, and other disorders which could not in the slightest degree be detected by physical or other examinations. These people, many of them, had persuaded themselves that they were sick and disabled. Many of them could not do the slightest thing, if such was called work, but much could be done under the name of pleasure, such as fishing, skeet shooting, piloting a boat, bird hunting, ten-cent poker, and other pleasures

which would perhaps require no physical exercise but which might increase their blood pressure, and be indulged in without damaging their chances of living provided no work was involved.

The depression, which came along in the thirties, also caused many people in a different financial bracket, insured under a group policy, to seek the security of a permanent and total disability. All of this illustrates the point that when the field is made fertile for the development of dependency on some agency or carrier other than the patient's own efforts, they naturally seek the course of least resistance and demand help from other sources. The experience of life insurance companies, if studied, would be most interesting because I do not believe that the underwriters have been at all successful in removing from their payroll any of those who are collecting for total and permanent disability, except by death, and the mortality is quite low for the disease causing the disability.

It is my belief that unemployment (which is liable to increase in this country) from a psychological standpoint will cause the development of a great many subjective symptoms which could be classed as rendering a patient totally and permanently disabled. It is true that with stimuli such as this, and others, it is almost next to impossible to determine total disability in a patient who has made up his mind and is determined to prove that he is totally disabled in order to obtain a life income from the Federal Government.

A great number of women are employed, some 18,000,000, many of whom probably would qualify for benefits under the proposed program. It is realized by those who are engaged in the practice of medicine that this would be a most difficult group to properly evaluate their claims for disability.

There are other pitfalls which could be brought to your attention, but I believe the idea has been developed from a practical standpoint sufficiently to warn the Congress of what a disastrous step it will be to our national economy to write into the Social Security Act any such program as that recommended in H. R. 6000, Section 107, for total and permanent disability. Social Security funds should necessarily be limited in amount; they represent taxes which are drained from the producers of the nation. Unless there is some limitation on the fantastic demands for funds, our national economic health will be thrown tremendously out of balance and a fatal condition of shock develop from which there is no recovery.

Since it has been very clearly shown that cash disability benefits diminish the incentive toward rehabilitation, self-reliance, and self-maintenance, which is extremely undesirable, it seems to me that the emphasis, and any consideration which is given to this program, should be focused on rehabilitation. This cannot be done successfully in my opinion under Federal control. All of the states, insofar as I know, have agencies which are capable of handling individuals who claim disability, such as the State Welfare Agencies. These agencies are on the ground. They know of the individual who applies for assistance. They have an opportunity to investigate their worthiness, and they have facilities for rehabilitation. They are also capable of finding work for him or her, and determining whether treatment at home, in an institution, or in other places is the most desirable. Please let them handle it.

I, therefore, respectfully request that this part of the program, Section 107, be eliminated in the Social Security amendment to H. R. 6000 since its adoption, in my opinion, will lead to the development of a considerable number of malingering and semi-invalid individuals among many of our worthwhile citizens. It would mean a further encroachment upon States Rights, and the building up of Federal payrolls which could be used for political influence in the handling of claims. It matters not what safeguards are taken to write into the law those who would be eligible for insurance, all of us know that after a short space of time no attention is paid to this law, just as is happening in other phases of the Social Security program and in the treatment of veterans in VA hospitals. It is common knowledge that veterans with non-service-connected disabilities who are perfectly able to pay for hospital care and medical services are being treated at considerable public expense when the law specifies under what conditions they should be beneficiaries of this service. The same could, in my opinion, happen with those drawing compensation for total and permanent disability benefits.

BOOK REVIEWS

A CENTURY OF MEDICINE IN JACKSONVILLE AND DUVAL COUNTY. By Webster Merritt, M. D. Price, $3.50. Pp. 220. Illustrations 44. Gainesville, Fla.: University of Florida Press, 1949.

Physicians and laity alike will find in this engaging narrative a most important contribution to Florida's medical and historical lore. With the sure and forthright touch of the true historian, Dr. Merritt presents in panoramic review the fascinating events, towering personalities and progressive movements of the entire nineteenth century as they pertain to medicine in Jacksonville and Duval County. His exhaustive research and painstaking efforts have brought to light in highly readable form history long obscured, owing to loss of official records in the Jacksonville fire of 1901. In sifting out the facts for this entertaining and accurate account, he pictures the physician as community builder and harbinger of progress as well as practitioner of medicine, and his facile pen loses none of the drama of the terrifying yellow fever and other epidemics or the gala events of the times. With equal skill he traces the foundation and early history of the Florida Medical Association and of the Florida State Board of Health.

As related editorially in this issue of The Journal, the author is a brilliant scholar and able historian who has made notable contributions to Florida history in The Journal and in historical publications. His book is profusely illustrated throughout its twenty chapters and makes a valuable addition to any library, particularly that of the physician.

A Contribution To the History of Medicine in Florida

It is with pleasure and with pride that The Journal contgratulates the Assistant Editor, Dr. Webster Merritt, on the publication of his book, "A Century of Medicine in Jacksonville and Duval County." Coming off the University of Florida Press early last month, this valuable contribution to the annals of Florida medicine and Florida history marks the successful completion of a monumental undertaking. In its pages live again the dominant figures, events and movements that shaped the medical history of the area from the arrival of the first physician in the closing years of the eighteenth century on across the entire span of the eventful nineteenth century. Graphically portrayed are the poignant drama of the terrifying epidemics, strange maladies and weird superstitions of the period. Through twenty carefully documented chapters, the fascinating narrative of the tribulations and triumphs of the courageous pioneers who laid the foundation for sound medical practice in Florida unfolds in appropriate crescendo commensurate with the changing times and the development of the region. Included is the early history of the Florida Medical Association and of the Florida State Board of Health.

From boyhood, Dr. Merritt has cherished deep interest in the history of his native state. His interpretations of that history are familiar to readers of the Florida Historical Quarterly, and also in particular to readers of The Journal through the series of articles on medical history which have appeared from time to time in its columns. He is a former president of the Jacksonville Historical Society and for several years has been vice president of the Florida Historical Society. He has also made notable contributions to medical literature of a scientific nature.

The task of the author in assembling the material for this volume was truly prodigious for it involved gleaning from collections, keepsakes, photographs and clippings of the older generations the obscure record that survived Jacksonville's disastrous fire of 1901. With the gift of the true historian, he has sifted fact from rumor and fable and has preserved for posterity an authentic and absorbing account, profusely illustrated with rare old photographs and drawings, which is of interest alike to his colleagues of the medical profession, the members of allied professions, lay readers and historians.

It is peculiarly fitting that this highly valuable contribution to the history of Florida should come from the University of Florida Press. Born in Gainesville, Dr. Merritt is a distinguished alumnus of the University of Florida. He was its first Groover-Stewart scholar in the College of Pharmacy and recipient of the D. W. Ramsaur Gold Medal for highest averages in all studies; he is an alumni member of the Beta (Florida) Chapter of Phi Beta Kappa. After completing his medical education at The Johns Hopkins University School of Medicine and serving as house officer on the Harvard Medical Service of the Boston City Hospital, he returned



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to Florida in 1936 and has since that time practiced in Jacksonville.

In felicitating Dr. Merritt on the occasion of the publication of his book, The Journal expresses the hope that this busy internist and editor will find time to continue his historical pursuits.

Shaler Richardson.

Reprinted from Journal of the Florida Medical Association, August, 1949.

NOTICE

On May 2nd, 1950, the allergists of Phoenix and Tucson met for luncheon at the Westward Ho and organized the Arizona Society of Allergists. The following officers were elected:

Honorary President.....E. W. Phillips, M. D.
President.....William B. Steen, M. D.
Vice President.....Eugene Gatterdam, M. D.

The membership consists of:

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W. B. Steen, M. D.

NEWS ITEM

DR. M. L. SUSSMAN addressed the San Diego County Medical Society on "Non-Tuberculous Lesions in the Lungs." He also served on a Panel which discussed "Aids to Cardiac Diagnosis" before the Annual Meeting of the American Heart Association.

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WOMAN'S AUXILIARY

INAUGURAL ADDRESS

The convention sessions were not only educational but most inspiring, and I cannot help but feel that by now all of us have a very clear picture of our "road ahead."

I want you to know that I am very honored to have been given the opportunity to serve you as your State President. I am not only honored, but very humble in the realization of the tremendous duties and responsibilities the office entails, particularly in this, a most crucial period of the organization's existence. My one hope is to measure up to the high standards set by my predecessor, Mrs. Starns. She has been a most outstanding executive.

The Auxiliary has held faithfully to the five objectives that constituted the basis for its organization, but to these must be added a further objective—that of helping to conquer the formidable problem confronting us today—the problem of government control of medicine. We must ever be mindful that this issue does not pertain to medicine alone; it is something which threatens the economic and political freedom of our country. A freedom we have all come to take too muchly for granted, I am afraid.



MRS. BENJAMIN HERZBERG

It is the prescribed duty of every doctor's wife to be interested and informed and to have a speaking knowledge, not just a reading knowledge of the program propounded by the American Medical Association. With the diverse club associations represented in this group, and the social contacts, if we are informed and interested, and above all united, we can be not only of inestimable value to our doctors, but also a positive force in helping to combat the creeping socialism that is threatening to destroy our American way of life.

You must be aware thot the tremendous task to be done in the year to come is not one to fall upon the shoulders of the State and County Board members alone—it is the personal responsibility of every doctor's wife, for this year, more than any other, will necessitate our participation in any endeavor on the request of our Medical Association. Of this you will be made more fully aware when the State program is presented to you in the fall.

I most sincerely and earnestly seek your loyalty and support and I ask that each and every one of you rededicate yourselves to the work of the Auxiliary. The benefits derived from anything you do is commensurate only with the effort, understanding and enthusiasm you put into it. For myself, all I can say is that I shall try to do my very best.

I know you won't let us down, and by joining ranks and working hand in hand in the common cause, this year will be one of personal satisfaction and group accomplishment.

MRS. DOROTHY HERZBERG,
State President.

ANNUAL REPORT
1945-1950

President: Mrs. Charles E. Starns
2934 Croydon Drive
Tucson, Arizona

To the National Officers, Chairmen and Members, The Woman's Auxiliary to the Arizona Medical Association sends greetings and its President submits the following report:

Organization

In the Auxiliary in Arizona there are but four component auxiliaries—in Gila, Maricopa, Pima and Yavapai Counties. The current membership is 347, an increase of 12 over last year. There are in the state 40 members-at-large.

Programs

The programs for the year were planned to create greater interest and attendance at the regular meetings; to make available to members information relative to the Auxiliary, the Medical Association, the various health agencies, and current proposed legislation which concerns the medical profession and the nation's health; and to emphasize how best the Auxiliary can concentrate its efforts in helping to resolve the issues of the Education Campaign, and further the development of a greater recognition, understanding, and appreciation of American Medicine and of the services and achievements of our doctors.

Public Relations and Health

Each county auxiliary held a "Health Day Program" during the year. Special invitations to these programs were sent to all welfare and social organizations in the respective communities. By means of the newspapers and the radio, the general public was made aware of the nature of the program to be presented as well as informed that the meeting was open to the public and that everyone was urged to attend. For two of the programs the featured speakers were provided by the Arizona Medical Association. Through the efforts of the Auxiliary's Public Relations Chairman in cooperation with the Medical Association's Executive Secretary, arrangements were made for Dr. Ralph Gambell, a former British doctor now preparing for American citizenship and the practice of medicine in the United States, to be sent by the American Medical Association to address those attending the evening meetings held by the two larger county auxiliaries. As public relations projects, these meetings were outstanding.

In each of the counties commendable work was done by members, identified and given publicity as the Medical Auxiliary group, in promoting health projects beneficial to their local communities. Their enthusiastic participation in fund drives of such agencies as the Community Chest, the Red Cross, and the Cancer Society, and in the sale of Christmas and Easter seals brought such excellent results and favorable public comment from leaders of the organizations' drives that the public relations value of these activities is obvious.

National Education Campaign

Efforts were made within the auxiliaries to so educate the members that individually they could informally dispense authentic information on the subject of the Campaign to their associates, one at a time or in small groups as occasions arose, as well as through programs and projects they might be able to help plan and execute in other women's organizations of which they are members.

Early in the summer of 1949 the county auxiliaries began the distribution of available pamphlets from Campaign headquarters among the

women's groups of their communities. This was followed during the year by other informative material relative to Compulsory Health Insurance and similar socialized medicine plans tried by other nations. The State Auxiliary purchased and sent to the presidents of the most representative of women's organizations, both on the state and county levels, a copy of Flynn's *Road Ahead*. To these same groups, packets of material were sent which included reprints of such outstanding articles as James Byrne's *First Things First*, the Stasson series of contributions to the *Readers' Digest*, and the *Look* article on the American Medical Association. A personal letter from the State Auxiliary President went out to each of these organizations pointing out the vital importance of the issue which prompted the writing of these articles, reminding the group leaders that the socialism of medicine is but one of the initial steps toward the complete socialization of the government, and uring that this subject be given a place on the study agenda of the group at a very early date. Resolutions were asked for and in some cases were made as requested, but greater emphasis was placed on securing an opportunity for individual education of the group's members relative to the implications of the controversial measure than in obtaining the organization's resolution endorsing the opposition to the passage of the measure. The responses received relative to the use of the materials sent in special programs, in debates, etc., were most encouraging.

Philanthropic

The philanthropic activities in the auxiliaries included extensive participation in local charities, making donations of time and money to local health agencies, providing needed furnishings for the Children's Home, raising funds for school health councils and in purchasing valuable equipment for the local hospitals.

Student Nurse Loan Fund

During the year sufficient money was collected in this fund to make interest-free loans to two young women to finance their three-year nurse-training course. This fund is administered by a committee of nine auxiliary members.

Legislation

Pending and proposed legislation affecting health and the practice of medicine was on the study agenda of the county auxililaries. Auxiliary members and the state and county auxiliaries as organizations have communicated, in personal letters and telegrams or by formal resolutions, with members of the Congress relative to legislative measures in which we are so vitally interested. The officers, the legislative committee, and the members nidividually exerted their influence on members of the state legislature in a successful effort to secure a much needed additional appropriation for the Child Colony, an institution for the care and rehabilitation of mentally deficient children.

History

The record of the state historian is complete to date.

Today's Health and Bulletin

Subscriptions to these two periodicals showed an increase over the preceding year but still were far short of the expectations of the respective chairmen.

Publicity

Local newspapers were most cooperative in printing on their women's pages accounts of the constructive activities of the state and county auxiliaries. Arizona Medicine, sent to every doctor's wife as well as to each doctor's office, provided the Auxiliary with space for all articles and items of direct interest and import to present and potential auxiliary members.

The state president and three delegates represented the auxiliary at the National Convention in Atlantic City. The president-elect attended the National Conference of State Presidents and Presidents-Elect in Chicago. The president and the president-elect paid official visits to each of the county auxiliaries. Regular contacts with the auxiliaries and with the members-at-large was maintained by the president through individual letters and form-letter correspondence.

Respectfully Submitted,

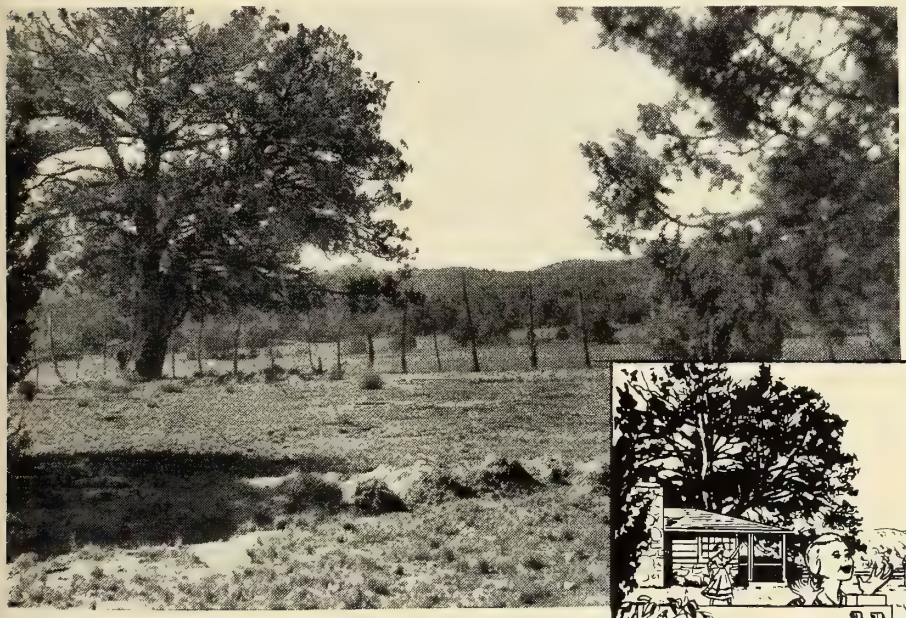
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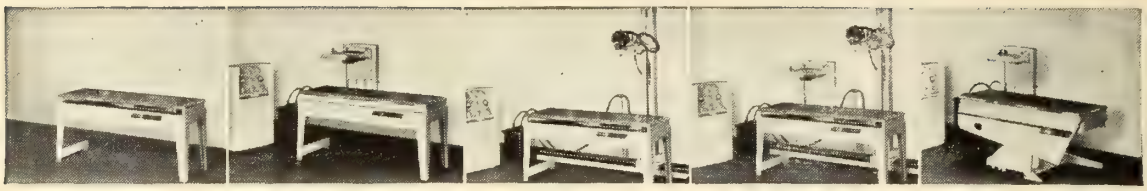
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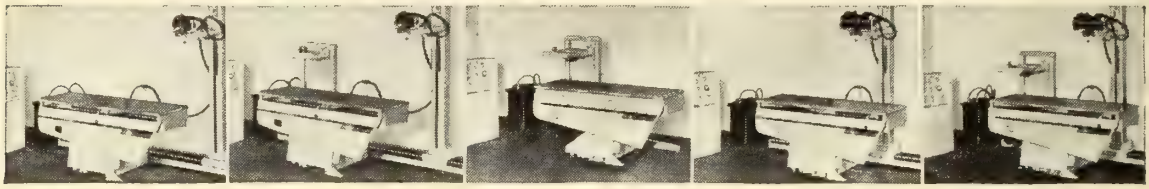
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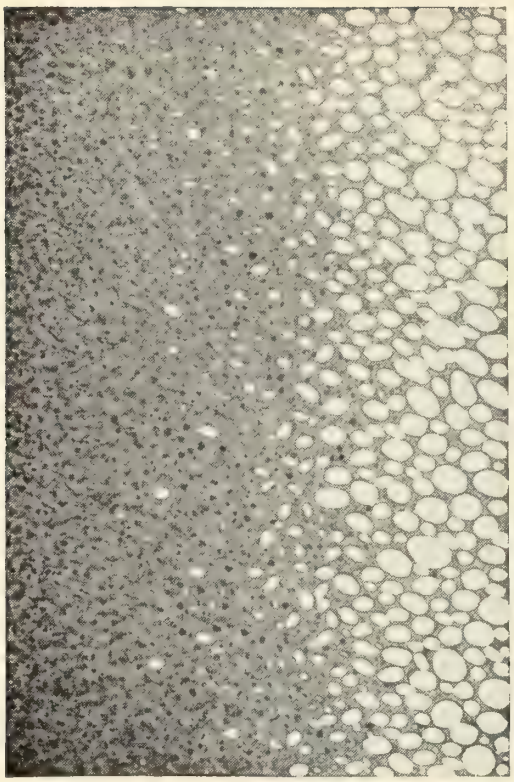
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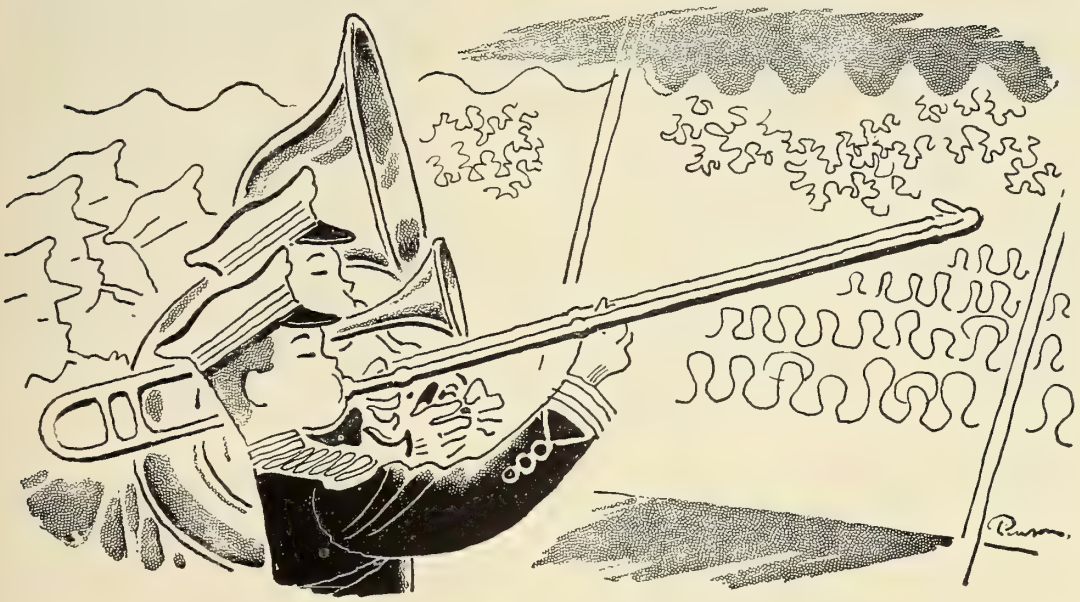
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1. Beckman, H.: Treatment in General Practice. Philadelphia, W. B. Saunders Co., 1946, p. 103.
2. Loeb, R. F. (Chairman, Board for Coordination of Malarial Studies) et al: Activity of a New Antimalarial Agent, Chloroquine (SN7618), J.A.M.A., 130:1069, Apr. 20, 1946.



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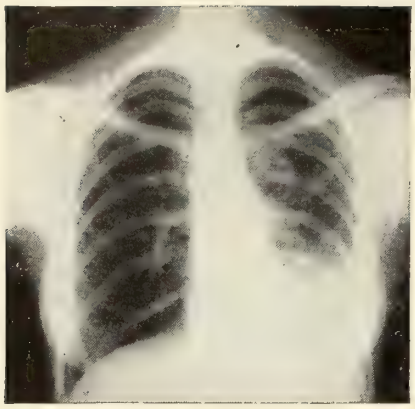
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ARIZONA MEDICINE

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CONGENITAL ANTEVERSION OF THE NECK OF THE FEMUR

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Phoenix, Arizona

CONGENITAL anteversion of the neck of the femur without dislocation of the hip is a relatively common congenital deformity. This condition is scarcely mentioned in medical literature and no record of it is found in the standing textbooks on orthopedic surgery. In most cases, the deformity is of insufficient degree to produce symptoms of any consequence. Rarely the congenital anteversion of the femoral necks is of such a degree that it does result in deformities of gait. It is for this reason that it was deemed advisable to describe certain clinical aspects of this condition.

The easiest way to understand what is meant by "anteversion of a femoral neck" is to examine a femur carefully. If a femur is placed with the posterior aspect downwards on a flat surface so that the medial and lateral femoral condyles and the posterior aspect of the greater trochanter rest upon this surface, it is noted that a pin drilled through the center of the femoral head and neck makes an angle with the plane of this surface of 0° to 15° in the normal adult femur (Figure 1). In the condition known as "congenital anteversion of the femoral neck," the angle between the head and neck of the femur and the flat surface noted above upon which the femur rests has an angulation in excess of the 15° mentioned. In fact, this angulation may, in certain instances, approach or reach 60°.

Medial and lateral rotation movements of the normal hip are limited by the relationship of the head and neck of the acetabulum. Medial rotation of the hip is that movement in which the anterior surface of the thigh is rotated toward the midline, while lateral rotation is that movement in which the anterior surface of the thigh is rotated away from the midline. The anterior surface of the femoral neck will come in contact with the anterior surface of the acetabulum with medial rotation movements and the posterior surface of the neck will come in contact with the posterior surface of the acetabulum with lateral rotation, thus limiting such movements. It is obvious that in a case of congenital anteversion of the femur, the hip will have excessive medial rotation and diminished or absent lateral rotation.

An individual cannot walk in a normal manner without lateral rotation movements of the hips, because, in the normal walking gait, lateral rotation of the hips occurs simultaneously with advancing the foot and leg forward on the same side. If a lateral rotation motion of the hip is not possible, advancing the pelvis forward on that side results in an apparent medial rotation of this hip, giving a peculiar gait, or else the individual must walk in a very

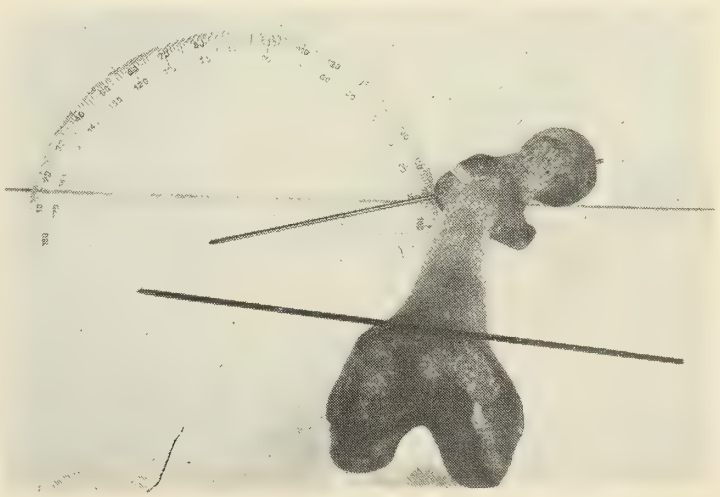


Figure 1

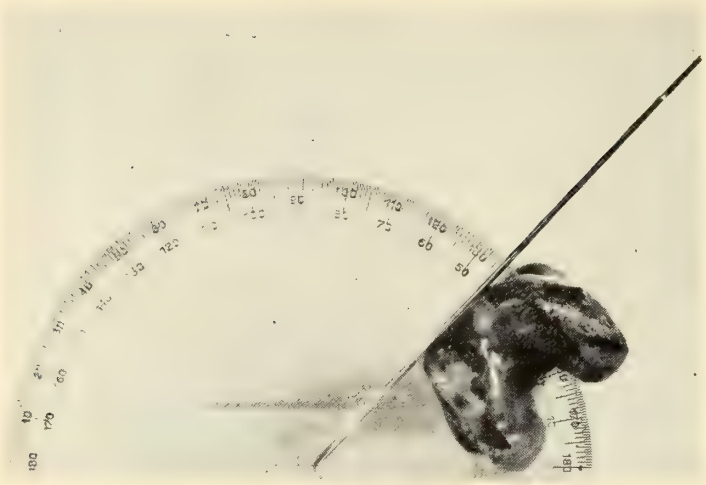


Figure 2
55° Lateral Rotation of Right Hip

stiff manner, keeping the pelvis at right angles to the direction of movement.

SYMPTOMS

The patient with congenital anteversion of the femoral necks (since the condition in our experience is bilateral) is brought to the doctor with the complaint that the child is knock-kneed, that the "feet turn in," or that the patient has a peculiar gait. The parents state that the deformity was noted soon after the child began to walk. The parents may state that the child has difficulty in sitting "tailor fashion" or that the child sits on the inside of his heels with the outside of his feet flat against the floor. In some cases the parents complain that the patient is unable to cross the knees in an ordinary manner. It is not unusual for the parents to describe having taken the child to several doctors who have attempted to correct the deformity by wedging the heels of the shoes or by applying braces to the legs or feet without benefit. In our experience the parents are almost always unaware of the fact that the deformity is in the hip region.

PHYSICAL EXAMINATION

The physical examination ordinarily is entirely negative except that the child has excessive medial rotation movements of the hip and absent or decreased lateral rotation movements. In order to determine this fact accurately the child should be stripped and placed supine on a firm flat table. The pelvis should be kept horizontal with the table and not permitted to turn, thus giving a false impression of rotary movements. The examiner should grasp the legs or feet and medially rotate both thighs, noting the degree of angulation between an imaginary plane parallel with the anterior surface of the patella (since this plane is essentially parallel with the plane noted previously with the femora lying on a flat surface) and the plane of the table (Figures 2 and 3). For example, if medial rotation may be carried out to such a degree that the knee caps directly face each other, each may be said to have approximately 90° of medial rotation. Lateral rotation is determined in the same manner by rotating the thighs the maximum amount laterally and noting the degree of angulation in the same manner as that of medial rotation. For example, if lateral rotation may be carried out to such a degree that the knee caps are on exactly opposite sides of the femora, then lateral rotation would be approximately 90°. If lateral rotation may be carried out so that the knee caps will face only directly forward (or upwards in this case), the degree of lateral rotation of the hips is approximately zero. If the degree of medial rotation greatly exceeds that of lateral rotation, the examiner may feel assured that some anteversion of the femoral neck is present unless there is some other condition to explain this abnormality, such as a fractured femur which has healed in mal-union.

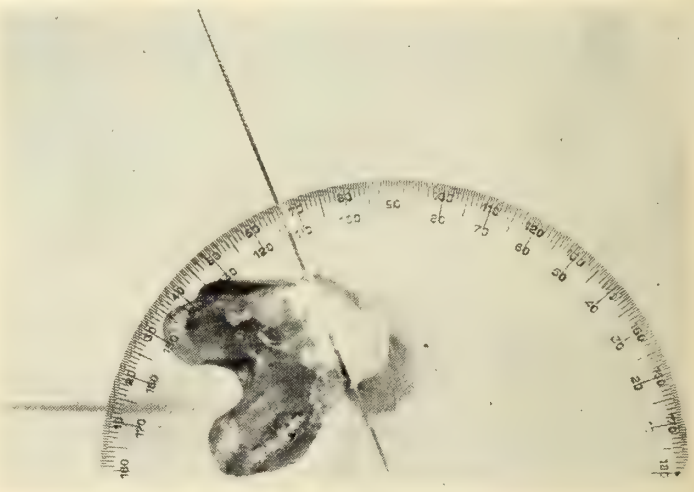


Figure 3
67° of Medial Rotation of the Right Hip

It is important not to gauge the degree of rotation of the hips by the position of the tibial tuberosities, because a certain amount of rotary movement may take place in the knee joints and it is even more important not to gauge the degree of rotation of the hips by the position of the feet since considerable rotatory motion may take place in the subtalar and mid-tarsal joints. The patient should be observed walking while wearing no clothing so that the position of the thighs may be clearly seen. By this means, it may be determined that a decrease in lateral rotation of the hips is present which will give the patient a peculiar swinging type of gait.

In the average adult without obvious hip disease or some injury to the femora, the degree of lateral rotation of the hips exceeds the medial rotation. Our clinical observations, which are not yet complete, indicate that the same may not be true in children, and that more variation is present with them. This is confirmed by the studies of Kingsley & Olmstead.

X-RAY EXAMINATION

Cases suspected of having congenital anteversion of the femoral necks should have anterior-posterior radiographs of both hips taken with the hips in maximum medial rotation, maximum lateral rotation and in a neutral position with the hips in no rotation. Most radiologists are not familiar with this condition and will report the hips as being normal. In anterior-posterior radiographs of normal adult hips, the femoral necks appear to have the greatest length when they are parallel to the film which means when they are in 0° to 15° of medial rotation. In the condition under discussion, the femoral necks will have their greatest length when the hips are held in considerable medial rotation, and they will have the least length when the hips are held in maximum lateral rotation.

CLINICAL COURSE

Whether or not this condition would disappear spontaneously with the growth of the child has not been fully determined, but in the case report to follow, no significant improvement was noted after observing the child for twenty-three months. Conservative treatment by wearing "twisters" has been tried by the author, but the follow-up period is inadequate. Treatment of the condition by use of heel wedges and other appliances apparently is inadequate. The following case was treated surgically with very satisfactory results.

REPORT OF CASE

This 3½ year old white girl was first seen June 6, 1947, because her parents complained that she was knock-kneed. The deformity had been noted since the child started to walk at ten months of age. She had a wobbly gait at that time and seemed to be "pigeon-toed." The deformity appeared to increase with age. She was taken to doctors who prescribed heel wedges, but these failed to alleviate the condition. The mother noted that the child often assumed a peculiar position, sitting on the medial surfaces of the ankles with the lateral surfaces against the floor. She did not complain of pain.

There was no family history of hip disease of any kind. The patient weighed five pounds at birth, and delivery was said to have been normal and at term. The child was given oleum percomorphum regularly. She had chicken-pox when two years of age and no other childhood disease. She was able to hold her head up at four months, to sit up at five months, and to walk when about ten months of age.

EXAMINATION

The examination on June 6, 1947, revealed no abnormalities except for the lower extremities. There was no clinical evidence of dislocation of the hips. The lower extremities were symmetrical and equal in length and circumference. The hips had an entirely normal range of motion except for rotation. Medial rotation exceeded 90°, bilaterally, but lateral rotation was only 25° to 30°, bilaterally. Her lower-extremities were straight, there being neither knock-knee nor bow-leg deformities. There was no unusual relaxation of the knee joints. Her feet appeared perfectly normal in the lying or sitting positions. There was no tibial torsion deformity. When the patient stood, she appeared to be knock-kneed, but obviously this was due to the fact that she held her hips in a medially rotated position while standing. She walked with a peculiar swinging gait with the feet apparently adducted.

X-RAY EXAMINATION

Radiographs of both hips with the hips in a neutral position (Figure 4) revealed no abnormality except that the femoral necks seemed unusually short and a coxa valga deformity appeared to be present. A radiograph taken with the hips in maximum medial rotation (Figure 5) revealed that the femoral necks were much longer than they appeared to be in the neutral position and that coxa valga deformity was not present. The mother was informed of the nature of the condition. She was told that femoral osteotomies might prove necessary at some later

date if the condition did not correct itself spontaneously.

CLINICAL COURSE

The patient was re-examined September 12, 1947, and no difference in the range of motion was noted. Both hips had 90° or slightly more of medial rotation, while lateral rotation did not exceed 20°. On March 8, 1948, re-examination revealed no change in the patient's condition and on May 4, 1949, clinical photographs were taken (Figures 6 and 7). The peculiar gait was still present. She had a very slight genu-varum deromity. The range of passive motion of her hips was as follows: abduction 45°, adduction 45°, flexion 30°, extension 180°, medial rotation 90°, latetral rotation 5°. Her ankles dorsiflexed to 80. ° Her feet were flexible and no foot deformities were noted.

On May 12, 1949 surgical operation was carried out in the following manner. Steinman pins were inserted at the middle thirds of the femora and at the lateral and anterior surfaces so that these pins made an angle of approximately 55° with the horizontal plans while the patient was lying supine with the hips in neutral rotation. Then, subtrochanteric osteotomies were carried out and the distal femoral fragments were ro-

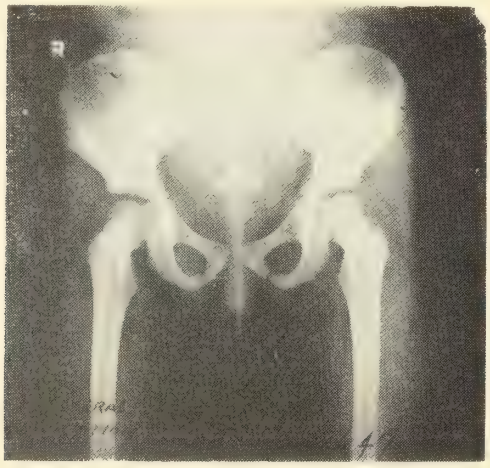


Figure 4

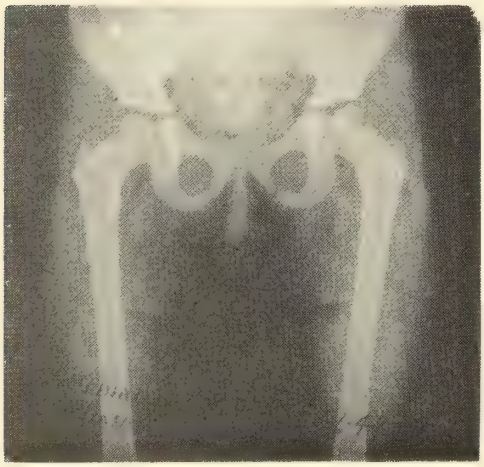


Figure 5

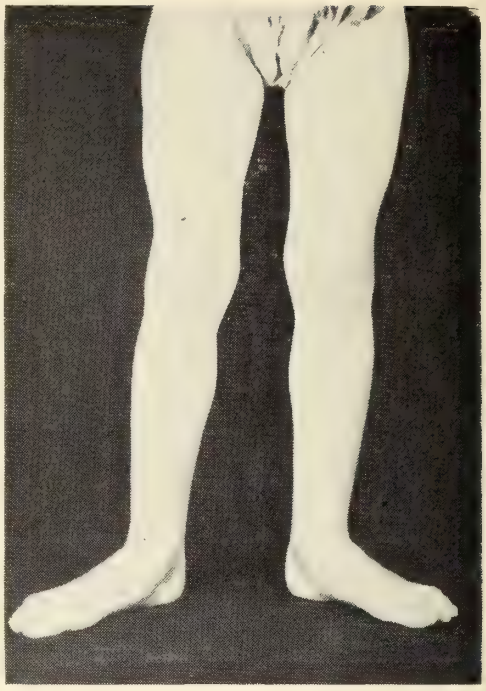


Figure 6
Patient standing in maximum hip lateral rotation.



Figure 7
Patient standing in maximum medial hip rotation.

tated laterally so that the Steinman pins were horizontal. The patient was immobilized in this position in a double hip spica.

On July 18, 1949, both casts were removed, the osteotomies having healed firmly. The patient was kept in bed until she had regained good strength of her quadriceps muscles and then was permitted to walk at increased intervals.

The patient continued to improve although she did walk in a rather unsteady manner for several weeks. Her parents were concerned at first because her hips seemed to be wider than they were before surgery. Post-operative x-ray examination, November 14, 1949 (Figure 8) revealed solid union of the osteotomies with normal appearance of the hips in neutral rotation. At the last examination on January 26, 1950, the patient had improved greatly and the parents were pleased with the results. The patient walked in a normal manner, the previously noted limp having entirely disappeared. The gluteus medius muscles were normal. The range of motion of her hips, passively or actively, was as follows: flexion, right 30°, left 30°; extension, right 180°, left 180°; abduction, right 45°, left 45°; adduction, right 60°, left 50°; medial rotation, right 50°, left 45°; lateral rotation, right 45°, left 50°. The operative scars showed a tendency to be keloidal. When the patient stood with her ankles touching each other, her knees were separated by an amount not exceeding 1/16″. Clinical photographs were taken on this date (Figures 9 and 10).

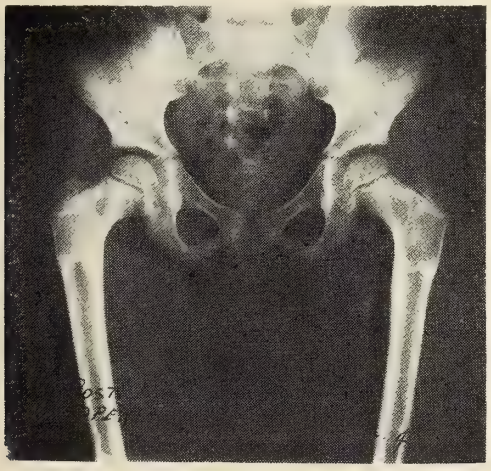


Figure 8

SUMMARY

Clinical aspects of congenital anteversion of the femora neck are discussed and one case report is given, indicating that the condition may produce clinical symptoms which can be corrected by surgical operation.

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Kingsley, Paul C. and Olmstead, K. L.; A Study to Determine the Angle of Anteversion of the Neck of the Femur. J. Bone and Joint Surg., 30-A; 745-751; 1948.

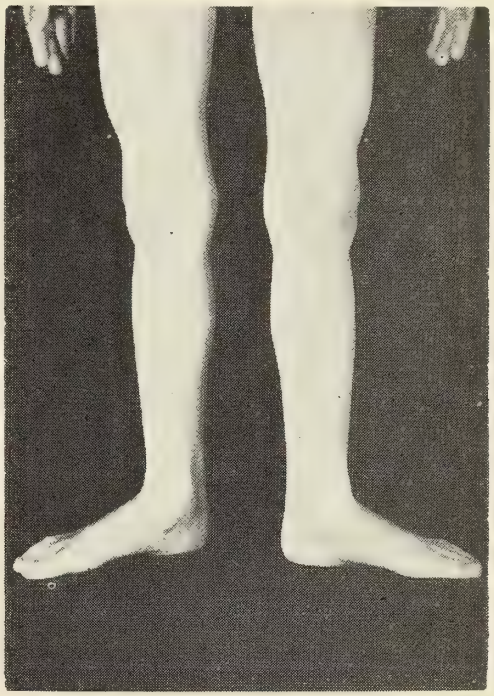


Figure 9
Patient standing in maximum lateral hip rotation

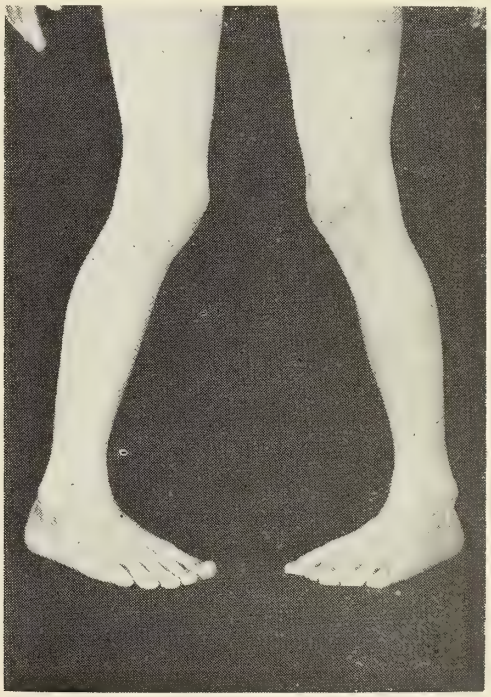


Figure 10
Patient standing in maximum medial hip rotation

DIABETIC COMA

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DIABETIC coma is the unique complication of Diabetes. It is the end result of untreated or completely uncontrolled Diabetes. In the strictest sense, it is a state of unconsciousness which accompanies the severe stages of diabetic acidosis. Today the term "diabetic coma" is more loosely applied, and it is necessary to set up certain arbitrary divisions. Any severe acidosis with a CO_2 combining power of 20 Vols. % or less is classified as coma. (At some institutions 15 Vols. % and at others 25 Vols. % is used as a dividing line.) The reasoning behind this is that before the discovery of insulin those patients who had a combining power above 20 Vols. % usually made a recovery, while those below did not.

Incidence of coma has decreased appreciably with the years since the use of insulin, but the death rate from it is still fairly high in many places. Three per cent is given by the Metropolitan Life Insurance Company as the over-all number of deaths due to coma.[1]

Pathological Physiology of Diabetic Coma

Diligent study of the chemical processes by which ketone bodies (acetone bodies) are formed from fatty acid has made it apparent that the former theories regarding their production must be modified. With newer, improved methods it is now possible to determine very small amounts of ketones, and minute amounts are found in the normal individual.

The old theory (Knoop Theory) was one of successive beta oxidation; that is, that the breakdown of fatty acids takes place in regular sequence by oxidation at the beta carbon atom with the production of a new fatty acid containing two less carbon atoms.

Now it is felt that there is multiple or alternate combustion and breakdown of the ketone bodies and that normally the body can utilize these incomplete breakdown products. But in the diabetic the breakdown is increased and the patient is unable to use the increased production. Therefore, a vicious cycle is set up with a depletion of CO_2, upset of acid base balance, dehydration, etc. Potassium and phosphate are also lost in great quantity with the ensuing diuresis.

A specific depletion of intra-cellular potassium which accompanies diabetic coma may be greatly increased by a diuresis artificially induced; that is, in treatment, when glucose is given, precipitating symptoms of respiratory failure.[2] Chlorides as well as fixed base are lost due to the vomiting and diuresis. The results listed below summarize the disturbed physiology occurring in diabetic coma:

1. Hemo-concentration and dehydration.
2. Depletion of both fixed base and the chlorides of body.
3. Lowering of the plasma CO_2 combining power.
4. Shift in the Ph to the acid side.
5. Depletion of glycogen stores in the liver and the muscles.

The dehydration and disturbances in *intracellular* electrolyte economy may be important in causing death, as they affect respiratory centers.

It has long been held that the utilization of carbohydrate exerts antiketogenic effect, and the primary aim in treatment is to improve the oxidation of glucose.

Etiology of Diabetic Coma

The factors may be tabulated as follows:

1. Too much food:
   a. Breaking of diet.
   b. Consumption of body tissues, as in undiagnosed Diabetes Mellitus, fever or Hyperthyroidism.
2. Too little insulin:
   a. None.
   b. Carelessness, ignorance.
   c. Discovery of Diabetes with coma.
3. Infection:
   a. Upper respiratory infection.
   b. Pneumonia.
   c. Carbuncle.
   d. Acute febrile disease.

The diabetic must be taught the dangers of overeating or of omitting insulin, especially in case of illness. So many times the patient will

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say, "I didn't eat, so I didn't take any insulin." Just recently I was attending a hospital patient with tuberculosis. She had a severe set back with hemorrhage from the lung, associated with loss of appetite. The hospital chart showed that the patient had not received insulin. I asked the nurse about it, and she looked unbelievingly at me and exclaimed, "Why *she* isnt' eating; we were afraid to give insulin!"

Many cases of severe Diabetes are not diagnosed until the patient is in coma. This leads to severe complications. This situation can be prevented by education and early recognition of the disease.

Symptoms and Signs

There are certain warning signs and some simple directions in which the patient and immediate family can be instructed in order to ward off coma. However, these can be vague and elusive to the doctor as well as the patient. Any of the following symptoms should be investigated: headache, anorexia, restlessness, weakness, listlessness, nausea, vomiting, drowsiness, painful and rapid breathing, or unexplained fever. A combination of the above should make one alert for coma, and patients should be taught the following rules:

1. Go to bed whenever indisposed.
2. Keep warm.
3. Call a nurse or some one to wait on you.
4. Call a doctor after testing the urine.
5. Drink a glass of liquid each hour—tea, coffee, broth, diluted orange juice, or oatmeal gruel.
6. Enema and fluids by rectum.
7. Appropriate amount of regular insulin on advice of your doctor.

Symptoms:

The onset of definite acidosis is attended by headache, malaise, nausea, vomiting, abdominal pain and generalized pain. It is also associated with thirst and polyuria.

Signs:

The patient lies in bed, is comatose, and may be moaning with pain. The skin is cold, dry and mottled; the face is flushed. The body temperature is subnormal; the pulse is rapid and weak; the blood pressure is low. The tongue is dry and coated and the eyeballs are soft.

Laboratory Findings

Blood sugar: Usually 440 to 550 mg. % or higher.

CO_2: 10 to 15 Vols. %.

Blood acetone: 100 to 190 mg. per 100 c.c.

Urine: ++++ sugar, acetone, diacetic acid (none in a renal block), showers of casts and albumin.

Hematologic change: high leucocytosis, (15,000 - 50,000).

Differential Diagnosis

There are a number of conditions to consider. The coma of a severe hypoglycemia can cause considerable confusion, although ordinarily the difference betweeen the two is quite great. If laboratory facilities are available, the differentiation is easy; if not, a concentrated glucose solution may be given as a trial. The history of onset is also very important.

Other causes of coma to consider are cerebral hemorrhage, uremia, meningitis, barbital poisoning, or toxemia of an overwhelming infection. Careful history, physical examination and laboratory work are essential in making a final diagnosis.

Prognosis

The prognosis depends upon the severity of the acidosis, the state and duration of unconsciousness, the age of the patient, the cardiovascular status and the complications that may arise—such as pneumonia.

An acidosis of short duration, twenty-four hours or less, will usually respond rapidly to treatment. An acidosis persisting for several days and culminating in unconsciousness will require more diligent treatment and may not respond satisfactorily for twenty-four to forty-eight hours after treatment has been instituted. A state of unconsciousness for twenty-four hours or more is very serious and it is usually this type of case which may succumb.

Children respond more readily to treatment and recover rapidly, principally because the duration of the disease is shorter and there are less apt to be complications. However, for the child who is poorly controlled, in mild acidosis frequently and in coma often, each succeeding coma may be a little more difficult to treat successfully.

Treatment

In order for the treatment to be successful, it must be instituted rapidly and energetically.

Hospitalization is to be desired, since adequate nursing care, laboratory procedures and special medications can be given without difficulty.

It is a good plan to have a routine program to follow for the treatment of coma; although, of necessity, the plan must be adjusted to the individual. The following suggestions are given as a program that has proved successful:

1. During the first hour after admission, the urine should be examined for sugar, diacetic acid, albumin, casts and pyuria. The patient should be catheterized if unable to void.

2. The blood should be tested for sugar and carbon dioxide content, obtaining a report within the hour. The white blood count and nonprotein nitrogen also are important.

3. A careful history should be obtained from the family to explain the cause of coma. A complete physical examination should be made to determine the state of unconsciousness, type of respiration, pulse rate, blood pressure and rectal temperature. One should also look for soft eyeballs, dry tongue, dilated stomach, cold and mottled skin, and impacted rectum.

4. One hundred (100) units of crystalline insulin should be given subcutaneously at once if the blood sugar exceeds 300 mg. % per 100 c.c., and if the blood carbon dioxide content is 20 Vols. % or less. The dose would be proportionately less in patients with recent onset of Diabetes or in young children. When the blood sugar is between 600 and 1,000, two hundred (200) extra units should be given; and where it is above 1,000, at least 300 units should be given in addition.

5. A gastric lavage with warm water, performed carefully, should be given to relieve the distention and remove undigested food particles.

6. Two thousand (2,000) c.c. of normal saline should be given intravenously; additional amounts can be given depending upon state of dehydration. Rapid administration must be avoided in older patients.

7. The patient should be kept warm, but burns to skin must be avoided.

During the second to the sixth hours, the administration of more insulin depends upon the severity of the coma, and occasionally it is necessary to repeat the first hour's dose in one hour. A repeat blood sugar should be taken at the end of three hours and 50 to 200 units of insulin given if the blood sugar is rising. As soon as the patient is able to tolerate fluids by mouth, 120 c.c. of broth, ginger ale, orange juice, tea or coffee should be given every hour. If the vomiting recurs, oral fluids should be stopped for twelve hours and the stomach lavaged again. During this period, an enema should be given to cleanse the lower bowel and relieve distention, and the urine should be checked for sugar and diacetic acid every hour. A record of the twenty-four-hour volume should be kept as well.

From the sixth to the twenty-fourth hour, definite signs of improvement should be noted. A repeat blood sugar should be taken and additional large doses of insulin should be given if the blood sugar continues to rise. If fall in blood sugar is satisfactory, insulin may now be given according to urine sugar tests every one to four hours as follows: (The urine test generally used is the qualitative Benedict method, although the Clinitest is equally satisfactory.)

Urinalysis Result	Red	Orange	Yellow	Green	Blue
Units of Reg. Insulin	20	16	12	0	0

On the second day, a diet of soft food may be given containing 100 to 150 Gms. carbohydrate, 50 Gms. protein, 50 Gms. fat. Administration of protamine zinc insulin should instituted, supplemented by crystalline insulin in small doses before meals as indicated by blood sugar and urine tests.

By the third day the patient should be returned to a standard diet for age and weight, with carbohydrate of 150 to 200 Gms., protein of 60 to 100 Gms. and fat of 60 to 120 Gms. daily.[3]

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THE USE OF CONTINUOUS CAUDAL OR SPINAL ANESTHESIA IN THE TREATMENT OF ECLAMPSIA

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A FACT basically recognized by all physicians is that the etiology of toxemia of pregnancy continues as one of the major unsolved problems in the fields of research and clinical medicine. The formidable significance attached to this subject is attested by the fact that even the best obstetrical centers throughout the country, such as The Margaret Hague Maternity Hospital, report their immediate maternal mortality for convulsive eclampsia as 10 per cent, and their fetal mortality as 33⅓ per cent.[1] Although these statistics are greatly reduced from statistics of two decades ago, a further reduction in mortality depends principally upon the detection of an unequivocally proved etiologic mechanism, from whence a specific treatment can be developed.

As has been so excellently summarized by Whitacre, Hingson, and Turner[2] in 1948, the presence of a generalized angiospasm in all toxemia patients, the etiology of which is undetermined, is in all probability one of the predominant factors causing the following changes in preeclampsia and eclampsia:

(1) Constriction of the arterioles of the ocular fundi,

(2) The fluctuations in blood pressure when the cold pressor test is applied,[3]

(3) The gradual hypertension of preeclampsia and the sudden rise in the blood pressure at the time of convulsions,

(4) Oliguria and anuria,[4]

(5) Intracranial hemorrhrage and cardiac failure.

In concurrence with this angiospasm theory of mechanism it was decided in 1947 at this hospital to supplement the modified Stroganoff treatment of eclamptogenic toxemias with continuous caudal or continuous spinal anesthesia. The procedure was suggested through personal communications with Dr. Frank E. Whitacre who had had favorable though unpublished results with this method. The continuous caudal or spinal anesthesia produces a vaso-dilatation in the lower portion of the body tending to increase the renal output and decreasing the hypertension and resulting load on the heart which so often leads to intracranial hemorrhage, pulmonary edema, and cardiac failure.

Because we feel that our results with this procedure are indicative of its value in the treatment of eclampsia and preeclampsia, we wish to report in detail four of the cases which we have treated in this manner since 1947.

CASE REPORTS

CASE 1. A 25-year-old white primigravida whose past history was non-contributory, and whose expected date of confinement was November 18, 1947, had a relatively uneventful prenatal course with the exception of a slight ankle edema in the last trimester, and a slight elevation of blood pressure (140/90) one week before admission. At no time was albuminuria present, nor did the patient complain of headaches, photophobia, epigastric distress or other symptoms of impending toxemia.

Upon admission to the hospital at 8 a. m. November 14, 1947, the patient had been in active labor for six hours. Her membranes were intact, contractions were every three to four minutes, the cervix was dilated 6 cm., and the vertex was presenting at plus 1 station. Temperature was 98.0 F., pulse 74, respiration 18, blood pressure 120/80, and the general physical examination was satisfactory with the exception of a mild pedal and ankle edema. Labor proceeded in a normal manner, and at 3:46 p. m., under a terminal spinal anesthesia of 50 mgm. novacain the patient delivered a normal baby boy by episiotomy and low forceps. Shortly before delivery the blood pressure ascended to 150/90, but at the time of delivery it was 138/100. Obstetrical pitocin ½ c.c. was given intramuscularly after the baby, and ergotrate, gr. 1/320, was given intravenously after the placenta. At 4 p. m., during episiotomy repair, the blood pressure rose to 170/90, and the patient developed generalized convulsions and slight cyanosis, which lasted two and one-half minutes, and which presumably was relieved by 0.4 Gm. of sodium pentothal intravenously. The blood pressure immediately dropped, and at the time of leaving the delivery room at 4:25 p. m. was 138/78.

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One-half hour later the patient complained of a severe headache, was restless, her blood pressure was found to be 180/100, and ophthalmoscopic examination revealed flare hemorrhages. Since these symptoms precede further postpartum convulsions, continuous caudal anesthesia supplemented by sedation and hydration was decided upon as the therapeutic procedure of choice. Before the caudal equipment could be set up the patient had another convulsion, which was aborted by intravenous sodium anytal, and at 6:05 p. m. a continuous caudal was instituted using 1.5 per cent solution of metycaine. One hour after the initial injection the blood pressure had dropped to 100/70. By 8:40 p. m. the total urinary output since delivery had been 165 c.c., analysis of which showed 3 plus albuminuria, 1 plus acetonuria. At this time the blood pressure was 130/90, and the patient experienced a third convulsive seisure, which was controlled by 25 c.c. of metycaine through the caudal needle.

During the next five hours the patient voided an additional 960 c.c. of urine, rested quietly, and the albuminuria had progressively decreased to a trace on hourly specimens while the acetonuria had disappeared. During this time the blood pressure on several occasions became elevated as the metycaine effect waned, but repeated injections promptly caused it to drop, and the level of blood pressure could easily be regulated by varying the dosage of metycaine. In an attempt to keep the blood pressure fluctuations at a minimum, pontocaine was now substituted for metycaine as the anesthetic agent. Approximatetly thirteen hours after delivery, since the blood pressure was well stabilized at 120/8 0to 130/90, and since the total urinary output since delivery was 1800 c.c., analysis of which showed no albumin or acetone, the caudal needle was removed (a total of 1125 mg. of metycaine having been given) and therapy continued on sedation and hydration. During the next forty-eight hours the blood pressure ranged between 98/60 and 144/90, and during the first twenty-four hours of this forty-eight-hour period, the urinary output was 2540 c.c., while during the second twenty-four hours the output was 5600 c.c.

Laboratory studies on this patient, including blood urea nitrogen and nonprotein nitrogen determination, were withihn normal limits with the exception of a mild secondary anemia. Her hospital course was otherwise uneventful, and she was discharged with the baby on her ninth postpartum day in a greatly improved condition, and with a blood pressure which had remained fairly well stabilized around 112/80. When admitted to this hospital one year later for minor surgery, her blood pressure and urinalysis were normal.

CASE 2. A 30-year-old white gravida II expected the date of her confinement on May 29, 1948. The past history was negative and she had had a normal prenatal course until the morning of admission when she noticed increasingly severe headaches, vertigo, and photophobia. Examination at her physician's office revealed a blood pressure of 210/150 and 4 plus albuminuria. Although she was instructed to proceed immediately to the hospital, she preferred to return home where she experienced three generalized convulsions before she entered the hospital at 10 p. m. February 18, 1948.

At this time her temperature was 99.4 F., pulse 90, respirations 18, and blood pressure 170/110. She appeared acutely ill, was semicomatose and irrational; her skin was pale and moist; severe dependent, sacral, and flank edema were present. Ophthalmoscopic examination revealed definite arteriolar spasm. The fundus was at the umbilicus, vertex presenting but not engaged; the cervix was long and firm with no dilatation; fetal heart tones were 150 per minute.

Shortly after admission the patient had two more convulsive seizures, each of several minutes duration. For the first twelve hours after admission she was placed on conservative treatment of rest, fluids, sedation, and analgesia, which regimen produced no clinical improvement, and the urinary output was only 42 5c.c. Therefore, twelve hours after admission, a continuous caudal anesthesia was begun, but despite adequate anesthesia to any desired level by varying dosages of metycaine, the blood pressure remained constantly around 170/110. After nine hours of caudal anesthesia (325 mg. of metycaine having been given), the patient appeared less restless and her sensorium had cleared. However, because of the persistent hypertension and because no effective diuresis could be established and albuminuria continued at 4 plus, the caudal needle was removed and the patient was given a continuous spinal anesthetic by the Touhy catheter technic.[5] Twelve hours after the spinal was instituted the albuminuria decreased to 2 plus and remained that or below until discharge, and, although the total urinary output the first twenty-four hours was only 460 c.c., the output the second twenty-four hours was 2700 c.c., and for the twenty-four-hour periods thereafter varied between 1025 and 1900 c.c. The hypertension, however, failed to respond significantly at any time while under either continuous caudal or spinal anesthesia, indicating a pre-existing essential hypertension.

Fifty-seven hours after institution of the continuous spinal the patient was improved—effective diuresis had been established, albuminuria had disappeared, edema was definitely lessened—the spinal catheter was removed (a total of 259 mg. of metycaine had been given), and she was maintained on medical management.

During this time the patient had had irregular uterine contractions which had dilated the cervix to 2 cm. Inasmuch as she had two and one-half months gestation remaining, and because eclamptic attacks frequently recur, it was decided to induce labor in an attempt to prevent a future maternal mortality. Therefore, after routine medical induction, and after rupturing and stripping the membranes, she went into active labor, delivering six hours later a premature infant which expired shortly after birth.

Routine laboratory tests on this patient were negative with the exception of a mild secondary anemia. Consultation by an ophthalmologist on her second postpartum day revealed slight retinal edema of the right eye with old petechial hemorrhages. Her immediate postpartum course was uneventful and she was discharged on her eighth postpartum day with a negative urinalysis, blood pressure of 140/100, slight visual disturbances in the right eye, but otherwise in a normal state of health.

CASE 3. A 27-year-old primigravida, expected the date of her confinement to be March 22, 1949. She had had a negative past history and a non-contributory prenatal course with the exception of mild dependent edema for several weeks prior to delivery. At the time of admission to the hospital on March 17, 1949, she had been in active labor for eleven hours, and had noted no unusual symptoms. Her temperature was 98.8 F., pulse 80, respirations 20, blood pressure 158/100. She was experiencing contractions every eight minutes, appeared restless, pale, and acutely ill, and there was moderate pitting ankle and pedal edema. Examination of the abdomen revealed a term pregnancy, vertex presentation with good fetal heart tones; a rectal examination showed the cervix to be 1 to 2 cm. dilated with the presenting part at a minus 2 station. Immediate urinalysis revealed 4 plus albuminuria with numerous red and white blood cells.

It was agreed that the patient might be successfully managed on sedative and hydration therapy, which was instituted. However, seven hours after admission the blood pressure had risen to 210/114, and the patient had a moderately severe, generalized convulsive seizure lasting four minutes. A continuous spinal anesthesia was started immediately, using 1.5 per cent metycaine solution (at this time the patient was having regular contractions every two minutes and was 6 to 7 cm. dilatetd). Shortly after onset of anesthesia the blood pressure dropped to 190/100, and the patient went rapidly and uneventfully on to complete dilatation. About two hours after administering the anesthesia she delivered a normal living infant by means of low forceps and episiotomy. Three minutes after delivery, although the blood pressure had dropped to 130/85, she experienced another generalized convulsion of two minutes duration, which was easily controlled by additional metycaine, the blood pressure falling to 90/60.

The possibility of postpartum convulsions seemed imminent because of the occasional failure of the blood pressure to respond to repeated injections of metycaine and because of the persistence of the patient's severe headaches; consequently, the spinal catheter was left in place until the fourth postpartum day and the patient received repeated injections of metycaine. The first twelve hours after delivery the urinary outputp was 137 5c.c., albuminuria had decreased to 1 plus, and the blood pressure averaged 130/90. On the first postpartum day there was a marked diuresis, the total urinary output exceeding 5000 c.c., and the output the next five postpartum days averaged 2400 c.c. per day.

Laboratory examination, with the exception of a slightly elevated blood urea nitrogen, which three days later returned to normal, was essentially normal. In addition to intravenous fluids, sedation, parenteral vitamins, magnesium sulfate and narcotics for headaches, she was also given prophylactic penicillin, methionine, 500 c.c. of whole blood, intravenous amino acids, and a high-protein, salt-free diet. Her clinical condition improved steadily, and at the time of discharge with the baby on her ninth postpartum day, there was no edema, urirne was negative except for 1 plus albuminuria, and the blood pressure became fairly well stabilized at 130/98.

CASE 4. A 23-year-old white primigravida whose expected date cf oonfinement was April 22, 1949, had a normal prenatal course with the exception of a rising blood pressure and moderate transient dependent edema which had been present during the last month of pregnancy.

At the time of admission to the hospital in active labor at 8 a. m. April 16, 1949 she stated that she had had frequent headaches for the past few days, associated with some photophobia and epigastric distress. Her temperature on admission was 98.6 F., plus 80, blood pressure 168/108. Strong uterine contractions occurred every five minutes, and there was mild generalized and dependent edema in addition to a 1 plus proteinuria. Examination of the abdomen revealed a term pregnancy, vertex presentation, normal fetal heart tones, and upon rectal examination the presenting part was at a minus 1 station with the cervix completely effaced but not dilated. The patient was to be treated conservatively until the cervix began to dilate and the head to descend, whereupon a continuous spinal was to be instituted if the status of the

preeclampsia remained the same or became intensified.

Eight hours later, when the cervix was 5 to 6 cm. dilated, and the blood pressure was 156/122, it was considered advisable to begin the regional block, but inasmuch as the only trained resident-anesthetist was occupied elsewhere, it was necessary to continue the patient on the conservative regimen already in progress. Two hours later, when the blood pressure was 130/100, a terminal spinal anesthetic was given and the patient delivered a normal baby girl by means of episiotomy and low forceps.

Four hours after delivery she became comatose, had severe generalized convulsions, and was severely cyanotic. After resuscitative measures, her blood pressure was found to be 170/110, whereupon a continuous spinal anesthesia was begun immediately, and after the initial injection of 2 c.c. of 1.5 per cent metycaine solution the blood pressure dropped to 110/60. Thereafter, frequently repeated injections of ½ to 2 c.c. of metycaine kept the segmental level of cutaneous analgesia at thoracic six to eight, and also maintained the blood pressure around 130/90, as well as relieving the persistent headaches. The urinary output in the first twelve hours after delivery was only 75 c.c., but for the twenty-four hours following increased to 2200 c.c., and for the succeeding twenty-four hour periods averaged 1500 to 2000 c.c.

Fifty hours after anesthesia was instituted the spinal catheter appeared to be plugged, but diuresis had been effectively established and maintained; moreover, when the metycaine dosage waned the blood pressure was down to 152/100. The catheter was therefore removed (total dosage having been 622.5 mg.). In the event that oliguria or increased hypertension developed the anesthesia was to be reinstituted. However, during the next few days diuresis contuined, the blood averaged lower, and proteinuria decreased from 4 plus on the first postpartum day to negative on the second day.

Because of financial considerations the patient's laboratory examination and hospital stay were minimized, and she was discharged with the baby on her fifth postpartum day. By this time the headaches and edema had disappeared, the blood pressure was 140/100, and urinalysis showed 1 plus albuminuria and hematuria.

DISCUSSION

We have noticed on many occasions that intravenous ergotrate administered to the patient under spinal anesthesia has produced a considerable elevation of blood pressure, and therefore it, as well as pituitary oxytocic preparations, might be omitted in these cases as a prophylactic measure. With cases under continuous spinal anesthesia for long periods of time Dr. Whitacre has suggested that the type of anesthetic agent be changed from time to time; i.e. from metycaine to pontocaine to procaine or vice verse. He also advocates that the anesthesia be discontinued intermittently in the event that the patient remains under control for some hours until the blood pressure begins to elevate again or other untoward symptoms appear. We believe that a catheter should always be used in the spinal canal in preference to a needle, and that its end should always be directed upward. If the catheter is inadvertently directed downward no anesthesia, or a transitory type of "saddle block" anesthesia will ensue. It has been observed that when the catheter is left in the spinal canal for long periods of time that occasionally the tip of the catheter will become blocked by impingement against the meninges. In such cases it becomes necessary to either withdraw the catheter several millimeters and/or inject the anesthetic material with increased pressure from the syringe. Also, we have found in several instances where the level of anesthesia was not high enough to produce anesthesia to above the renal area, that by placing the patient in a slight Trendelenberg position with the head acutely flexed during forceful injection of the solution, a satisfactory level could be attained. When the anesthetic level is to or above the eighth thoracic level the kidneys and adrenals are denervated, and a bloodless phlebotomy of the lower two-thirds of the body is produced by a vasomotor relaxation.

SUMMARY

We have presented the case histories of four patients with eclamptogenic toxemia of pregnancy who were treated with continuous caudal and/or continuous spinal anesthesia supplemented by routine conservative medical management. Of the four patients, all were under 30 years of age, three were primiparas and one a multipara. In two of the cases the convulsive seizures occurred before delivery while in the other two they occurred during the immediate postpartum period. One patient was treated by continuous caudal, one by continuous caudal later replaced by continuous spinal, and two by continuous spinal anesthesia. The minimal length of time a patient was kept under continuous anesthesia was thirteen hours, while the longest administration continued for ninety-six hours. Mety-

caine was the anesthetic agent used in all cases except one where pontocaine was employed for a short time. The minimal caudal dose was 1125 mg., the maximum 3525 mg.; the minimal dosage under continuous spinal was 622.5 mg., the maximum 3810 mg.

Two cases responded with pronounced diuresis and a definite lowering of proteinuria within twelve hours after institution of therapy, while in the other two cases improvement was not definitely assured until twenty-four to thirty-six hours later. Three cases showed a definite decrease in hypertension during therapy, while only one case failed to show the drop in blood pressure shown by the others. Two patients were discharged with blood pressures slightly exceeding the arbitrary standards of 140/90.

In addition we have treated a considerable number of preeclamptics, as well as many cases of hypertensive cardiovascular disease in pregnancy with equal success.

We have not presented this paper with the idea in mind of this treatment being of definite curative value in all cases of ecclampsia, but at least in our limited experience we humbly believe that it is the best treatment available at the present time.

Furthermore, we sincerely hope that this work will stimulate additional research and clinical surveys so that its potential value may be justly evaluated on a large statistical basis. In conclusion, we wish to warn, however, that this type of anesthesia is a powerful but dangerous therapeutic measure and should be used only by physicians who are thoroughly trained in its administration.

We wish to express our indebtedness and appreciation to Drs. John P. Hubbard, C. H. Kulaski, J. B. Kass, and Andrew A. Fulgenzi for their cooperation in permitting us to use their patients in this study, and to Dr. John E. Burnett for his active role in the treatment of the first two patients.

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Editorials

1950 Annual Meeting of the American Medical Association

San Francisco, California

Your Executive Secretary was privileged to attend the 1950 annual meeting of the American Medical Association held in San Francisco, California, June 26 through 30, 1950, with Headquarters in the historic Palace Hotel.

On Sunday morning, June 25, 1950, in company with Dr. Frank J. Milloy, Secretary; Dr. Robert S. Flinn, Councilor-at-Large; and Dr. Jesse D. Hamer, Delegate to the A.M.A., I attended the Seventh National (Grass Roots) Conference of the County Medical Society officers in the Gold Room of the Palace Hotel.

The meeting was called to order by A. M. Mitchell, M. D., Chairman, Terre Haute, Indiana; Gunnar Gundersen, M. D., member of the Board of Trustees of A.M.A., LaCrosse, Wisconsin, delivering the address of welcome. Worthy of note was a "TRUE and FALSE Questionnaire" on socialized medicine entitled: "What Do You Know for Sure?" distributed to each one in attendance, with the first twenty minutes allowed for answering. This quiz was conducted by L. Fernald Foster, M. D., Secre-

tary of the Michigan State Medical Society, Bay City, Michigan. While we will not discuss the results, you may rest assured your representatives fared very well with others in attendance and needless to say, this period of the program was both informative and instructive.

Three panel discussions were presented: (1) How to Organize a Community Health Council, Fred A. Humphrey, M. D., Fort Collins, Colorado, and Blair Holcomb, M. D. of Portland, Oregon, participating, the former taking the Affirmative viewpoint and the latter the Negative; (2) Providing special benefits through County Medical Society membership, Mr. Joseph Donovan, Executive Secretary of the Santa Clara County Medical Society, San Jose, California; and (3) How to set up a County Medical Society record system, Mr. Frederick W. Fagler, Executive Secretary of the Alleghany County Medical Society, Pittsburgh, Pennsylvania.

In the afternoon at this same location was held the Sixth Annual Meeting of the Conference of Presidents and other Officers of State Medical Societies. The meeting was called to order at 1:30 P. M., Clarence E. Northcutt, M. D., of Ponca City, Oklahoma, President, presiding. The first order of business included the presentation of annual reports of Executive Committees and the Secretary-Treasurer, John Farrell, M. D.; presentation of resolutions; appointment of Committees; and announcements.

Julian P. Price, M. D. of Florence, South Carolina, President-Elect and editor of the Journal of the South Carolina Medical Association, addressed the gathering on the subject: "Medicine's Greatest Gift." This address was followed by one delivered by A. Grant Clarke of New York City, President of the Medical Exhibitors Association, Inc. on the subject: "The Exhibitor's View of the Medical Convention." Harry Becker of Detroit, Michigan, Director of the Social Security Department, United Automobile-Aircraft-Agricultural Implement Workers of America CIO, spoke on "Labor Looks at the Problem of Prepaid Medical Care." His remarks were most controversial and a lively discussion resulted during the Question and Answer period from the floor. The Profession admirably rose to the defense of "The American Way" and challenged many of the inaccuracies and misstatements made representing the labor viewpoint.

L. C. Schusher of Jefferson City, Missouri, President of the Missouri Farm Bureau Federation, member of the Board, and Chairman, Rural Health Committee, American Farm Bureau Federation, spoke on the topic: "Better Health for Rural People—How to Get It." Baird H. Markham of New York City, Director of the American Petroleum Industries Committee of the American Petroleum Institute gave an inspiring talk on "American Democracy on Trial" and sparked for the defense spirited debate from the floor. The meeting was concluded following receipt of reports from the Reference Committee, Election of Officers and Executive Committee members, and the Presentation of Awards.

HOUSE OF DELEGATES

On Monday morning, June 25, 1950, at 9 o'clock, I attended my first meeting of the House of Delegates of the A.M.A., whose membership comprises a total of 198, in the Palace Hotel, followed by an afternoon's session. These two meetings were devoted primarily to the receipt of resolutions and appointment of Reference Committees to consider proposals presented by constituent bodies throughout the Nation. I was particularly impressed with the seriousness of this body's deliberations and the orderly processing of its important and diversified business. In one day alone over 70 pieces of business were transacted. The proceedings were well disciplined and the Speaker of the House, Dr. F. F. Borzell of Philadelphia, exhibited in masterly fashion, time and again, his familiarity with good parliamentary procedure and ability to cope with all situations arising. These sessions continued on Tuesday morning followed by the historic inauguration of the President Tuesday evening, with another full session Wednesday morning and afternoon. On Thursday afternoon the House reconvened for the election of officers and concluded its business. While I will not attempt to present a digest of the proceedings, all of which will be contained in an official report of the A.M.A. to be issued at a later date, I believe it is worthy of mention that the most controversial issue presented in my opinion was the report of the Reference Committee and subsequent adoption of a modified report of the Committee on Hospitals and the Practice of Medicine which denounces systems whereby hospitals hire salaried physicians for medical care and bills the patients for this care.

In the capacity filled to overflowing Gold Ball Room of the Palace Hotel on the evening of

June 27, 1950, at 6 o'clock (Pacific Coast Daylight Savings Time), broadcast Coast-to-Coast over two radio networks (ABC and MUTUAL), Elmer L. Henderson, M. D., of Louisville, Kentucky, new President of the A.M.A., truly stated is his opening remarks when he said: "In the annals of American medicine, this is an historic occasion." I shall never forget this momentous occasion. Flanked by Officers of the A.M.A. at an open meeting before its House of Delegates, Dr. Henderson took his oath of office and delivered his stirring inaugural address heard by millions of the American people. His complete address or excerpts therefrom will be published elsewhere in this Journal or possibly at a later date.

The San Francisco meeting was considered one of the most successful in the history of the American Medical Association. In excess of 20,000 persons were registered, of which more than 10,000 were physicians.

Just a word about the technical exhibits in excess of 300, and scientific exhibits approximating 150. Filling three floors of the Municipal Auditorium covering more than 100,000 square feet, they depict the great achievements of medical progress. The Scientific Sessions were likewise well attended, papers of National and International significance in excess of 300 being presented. They contributed much toward the success of the Ninety-ninth Annual Session (the one hundred third year) of the American Medical Association.

The 1951 annual meeting will be held in Atlantic City, New Jersey; the 1952 meeting in Chicago, Illinois, and the House of Delegates chose New York City, New York, as the location for its 1953 annual meeting.

Respectfully submitted,

Robert Carpenter,
Executive Secretary.



PHOENIX CLINICAL CLUB

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

Massachusetts General Hospital
Case Report No. 31342

A forty-three-year-old longshoreman was admitted to the hospital because of shortness of breath.

He was well until six weeks before entry, when he first began to note shortness of breath and weakness of the back and legs on climbing stairs and ladders. At about the same time he began to have a dry cough, especially after exertion. He was told that he had bronchitis and was treated with medicines, which afforded no relief. He had had slight hemoptysis on two occasions. Three weeks before entry he became sleepless and orthopneic, requiring three pillows. He had frequent night sweats. A week later he noted pain in his knees and thighs, but no swelling or redness. He also experienced a mild low substernal pain. The dyspnea and weakness had progressed to such a degree that, at the time of admission, he could not dress himself. During the six-week period of illness he had lost 15 pounds; he had had to quit his job two weeks after the onset of his illness.

At the age of four he had scarlet fever. He had not had rheumatic fever or any other severe illness. Four years before his present illness he had submitted to an Army physical examination and had been found to be in excellent health.

Physical examination revealed a slightly pale man with rapid, shallow labored breathing and limited chest expansion. The tongue was dry and red. There was no clubbing of fingers or toes. The neck veins were large but not pulsating. Fine moist rales were heard all over the chest, anteriorly and posteriorly. No murmurs were heard. The heart was not enlarged. The aortic second sound was equal to the pulmonic. The abdomen showed some voluntary spasm, and the abdominal wall was "sore" from much coughing. Rectal examination revealed a normal prostate. Neurologic examinations were negative.

The temperature was 99°F., the pulse 100 and regular, and the respirations 28. The blood pressure was 118 systolic, 75 diastolic.

Examination of the blood showed a red-cell count of 6,100,000 with 17.0 gm. of hemoglobin. The white-cell count was 9700, with 54 per cent neutrophils, 12 per cent lymphocytes, 27 per cent

eosinophils, 6 per cent monocytes and 1 per cent basophils. The red cells and platelets appeared normal. The urine specific gravity was 1.030, and the p^H 5.2. The sediment contained 3 red cells and 1 to 3 white cells per high-power field, with an occasional hyaline or granular case. A stool was formed, dark and guaiac negative. Repeated smears of the sputum showed no tubercle bacilli. The serum nonprotein nitrogen was 37 mg. per 100 c.c., the calcium 9.0 mg., the phosphorus 3.0 mg., and the cholesterol 205 mg. The protein was 4.98 gm. per 100 c.c. with an albumin-globulin ratio of 1.8. The alkaline phosphatase was 16.6 units per 100 c.c. and the acid phosphatase 3.3 units. A cephalin flocculation test was negative in forty-eight hours. The carbon dioxide and chloride levels were normal. The blood Hinton test was negative. An electrocardiogram on the first day showed a normal rhythm of 100, a PR interval of 0.17 second, and a flat and diphasic T_2, and inverted T_3, a deep S_2 and inverted T waves in CF_2, CF_4 and CF_5. At the same time an x-ray film of the chest showed extensive density of a rather unusual pattern in both upper lung fields and in the central portions of the left lower lung field. The heart did not appear enlarged. The left diaphragm was slightly elevated, and there was mild scoliosis of the thoracic spine.

On the third day marked variation of pulse and heart rate and sounds were noted on expiration. The pulse slowed and weakened during inspiration. A diastolic gallop at the apex and an inconstant diastolic scratchy murmur over the pulmonic area were heard. The respiratory rate rose to 40 for twenty-four hours on the third day, then returned to the former rate of approximately 30. Sputum cultures for streptococci, pneumococci and fungi were negative. The venous pressure and circulation time were normal. Repeated tuberculin and trichinella skin tests were negative. Re-examination of the chest fluroscopically and additional films on the fourth day showed no appreciable change in the extensive increased density that involved both lung fields. Further x-ray studies one week after admission showed a normal intravenous pyelogram. A film of the abdomen showed no soft-tissue masses and a normal-sized liver and spleen. Throughout the bones of the pelvis there were scattered nodules of increased density. A gastrointestinal series with the patient in the horizontal position showed the esophagus to be normal. The mucosal folds of the stomach were greatly swollen. An area of rigidity was seen just below the cardia on the lesser curvature for a length of 8 to 10 cm. On the spot films there seemed to be a shelf at the upper and lower edges of this lesion. A Graham test faintly outlined a normal-appearing gall bladder.

On the eighth day the patient spat up 10 c.c. of blood, which he stated came from his nose. A gastric analysis after histamine showed 9.9 units of free acid and 17.5 units of tatal acid. The sediment contained numerous polymorphonuclear leukocytes and was negative for tubercle bacilli. Repeated stool examinations showed three plus guaiac tests. The hemoglobin was unchanged. Successive differential counts showed the eosinophils to vary from 9 to 24 per cent.

The patient became progressively weaker and more dyspneic. During the third week the temperature rose slowly to 101°F., the pulse to 120, and the respirations between 40 and 50. The urine and blood were unchanged. The peripheral lymph nodes were thought to be enlarged. Respiration became more labored, and without a terminal episode, the patient expired on the twenty-second hospital day.

DISCUSSION

Dr. Robert S. Flinn:

This is the story of a 43-year-old man who was ill for only six weeks prior to entry because of shortness of breath; weakness and loss of weight. On admission he had rapid shallow respirations and most of his symptoms seemed to be related to his respiratory system. He had a relative polycythemia of 6,100,000 with relatively normal white count except for the presence of 27 per cent eosinophils which varied in successive count from 9 to 24 per cent. His alkaline phosphatase was 16.6 units but otherwise his blood chemical examinations were not remarkable. Electrocardiographic tracing showed T Wave changes in Leads II, III and in the chest Leads, consistent with coronary artery disease or pericarditis. X-rays of his chest showed extensive density of a rather unusual pattern in both upper lung fields and in the central portions of the left lower lung field. The heart did not appear to be enlarged. The examination of the chest showed no appreciable change in the extensive increased densities that involved both lung fields. X-ray of the pelvis showed scattered nodules and increased densities. X-ray examination of the stomach showed a rigidity below the cardia on the lesser curvature for a length of 8 to 10 cm.

During the 21 days the patient remained in the hospital, he became weaker and more short of breath and one assumes that most of the symptoms were referable to his respiratory symptoms.

In considering a differential diagnosis, one must mention the various infections of the lung and here we must assume that the patient did not have pulmonary tuberculosis; lung abscess

or fungus disease. If you or I could have seen the x-ray plates, we might not have been so vague in our description. At any rate one must assume that this was not the typical picture of a metatastic carcinoma.

The presence of the eosinophilia is rather interesting and raises the question as to the possibility of an aleukemic leukemia; a lupus erythematosus; or a periarteritis. I see no evidence on which to make such a diagnosis, although periarteritis nodosus with involvement of stomach, heart, lungs is an attractive possibility. One also, I suppose, must consider the possibility of Hodgkin's disease and even Paget's disease.

If one attempts to make one diagnosis fit the entire picture, one must explain the changes in the stomach, in the bone, in the chest on the same basis. I can think of only one condition which might account for all these various manifestations and that, of course, is carcinoma of the stomach. This diagnosis is perfectly tenable in spite of the fact that the gastric analysis showed 9.9 units of free hydrochloric and 17.5 units of total assets, since, according to prevailing textbooks, free acid is present in the gastric content in about 40 per cent of cases, and after the injection of histamine, subcutaneously, may be found in rather high concentration—75 to 100 clinical units. Although bone metastases from carcinoma of the gastrointestinal tract are relatively uncommon, I am forced to explain the whole picture of the basis of carcinoma of the stomach.

Dr. Clarence B. Warrenburg:

The 43-year-old longshoreman who is our patient for today, was well until six weeks before admittance to the hospital. He was admitted because of shortness of breath. The rather complete clinical picture, along with the x-ray and laboratory findings that are reported on the first page of the protocol, makes one think of a number of diseases that this patient might have had. But on the second page there is recorded a finding that gives us a lead as to the diagnosis in this case. I am referring to the G. I. series report which states that an area of rigidity is seen in the stomach just below the cardia on the lesser curvature. This lesion is described as 8 to 10 cm. in length and there seemed to be a shelf at its upper and lower edges.

This lesion is undoubtedly a carcinoma of the stomach, until proven otherwise. The protocol does not give us the advantage of a gastroscopic examination. A flat plate of the abdomen shows no abnormalities except in this x-ray film there are revealed scattered nodules of increased density throughout the bones of the pelvis. An x-ray film of the chest showed extensive density of a rather unusual pattern in both upper lung fields and in the central portions of the left lower lung field.

No tubercle bacilli could be found on repeated tests of the sputum. The heart seemed normal except for a rapid rate. The liver, gall bladder and spleen were apparently normal. The blood Hinton test was negative and the neurological examination was negative.

The whole picture, with a few disconcerting exceptions, is compatible with the diagnosis of cancer of the stomach with extensive lymphatic and hematogenous metastasis to the lungs.

Those exceptions are:

1. There is no mention in this history of even a mild gastric distress.
2. The gastric analysis reveals free and total acid.
3. No anemia is present.
4. An eosinophilia is present but this is sometimes present in the advanced states of CA.

The findings that favor the diagnosis of CA of the stomach with metastasis to the lungs are:

1. The age and sex of the patient. Most CA of the stomach occur after age of 40. The condition predominates in the male sex two to one.
2. The x-ray finding of a lesion in the stomach.
3. The extensive density of a rather unusual pattern in both upper lung fields.
4. X-ray evidence of metastatic lesions in the bones of the pelvis.
5. The cachexia, pallor and fever.
6. The 15 pound loss of weight.
7. Occult blood in the stool; and the patient spat up blood on the 8th hospital day.
8. Enlarged peripheral lymph nodes.

MY DIAGNOSIS IS:

1. Inoperable carcinoma of the stomach with extensive metastasis to the lungs and to the bones of the pelvis.

Livingston and Pack in 1939 estimated that there were more deaths from gastric CA alone than from cancers of the lip, tongue, tonsils, cheek, pharynx, larynx, salivary glands, thyroid, breast (male and female), ovary, uterine cervix and croups combined. Moreover, they state that there has been no improvement in the salvage

from gastric cancer in the past 20 years. They estimate the definitive cures of unselected patients with gastric cancer at 2 per cent.

Yet gastric cancer is curable provided only that the patient reaches the surgeon with a respectable lesion. What is needed is a high index of suspicion of cancer in the patient who complains of a gastric disturbance which does not yield to conservative treatment within a period of a few weeks.

DIFFERENTIAL DIAGNOSIS

Dr. Wyman Richardson: The story is that of a relatively young man with an acute illness lasting four weeks.

Is it fair to look at the temperature chart? I was quite interested to know whether he had a high plateau type of fever or one that went up and down.

Dr. Benjamin Castleman: You may see it. It is not striking.

Dr. Richardson: The fever apparently started off gently and really never did get particularly high. It was not a septic temperature.

First of all I want to run over some of the findings. The primary symptoms were pulmonary, and there was slight hemoptysis early in the disease. I think that this is worth emphasizing. He had night sweats. This is also worth emphasizing. The urine was essentially negative. It contained a few blood cells but no albumin. Several sputum examinations were done; but the story was that of an unproductive cough and there is nothing to suggest that what he was bringing up was really sputum. The alkaline phosphatase was elevated, and this suggests bone disease with osteoblastic activity. The murmur in the pulmonary area could possibly have been due to pericarditis, or to pleuritis from the overlying lung, or it may not have been significant at all. Tuberculin tests were negative. Repeated tests with trichinella antigen were also negative. There was pus in the gastric contents, an observation not frequently made, perhaps because it is not looked for. Perhaps we should see the x-ray films at this time. I am interested in the lesion in the stomach and the appearance of the chest, as well as some of the bone lesions.

Dr. Milford D. Schulz: The films of the chest show extensive, symmetrically distributed mottled and stringy areas of increased density spreading into both lung fields. These go all the way out to the periphery of the lung fields and seem to be most prominent near the lung roots. It ushers in as possibilities a whole group of lesions that includes lymphatic spread of tumor, fibrosis, miliary tuberculosis, sarcoid and others.

Dr. Richardson: You never see an x-ray of the chest like that with periarteritis nodosa, do you?

Dr. Schulz: Not quite like it, although somewhat approaching it. The findings in this film in association with the increasing dyspnea make one think about lymphatic spread of tumor, especially in view of the areas of increased density evident in the bones.

Dr. Richardson: Let us look at the bones.

Dr. Schulz: There are many round areas of increased density in the pelvis that look like osteoblastic reaction to metastases. Similar bone lesions can be seen in lymphoma.

Dr. Richardson: Do you see areas of osteolytic activity?

Dr. Schulz: I do not believe so. I think that they are osteoblastic.

Dr. Richardson: With widespread tuberculosis in the bone, is there ostoblastic activity or is it mostly a destructive process?

Dr. Schulz: I have never seen it look like this.

Dr. Richardson: This is, of course, a miliary process.

Dr. Schulz: The fluoroscopist observed greatly swollen rugal folds. The films of the stomach show an area of rigidity along the lesser curvature, and this is quite constant on the spot films. No actual tumor mass is seen, but there is ulceration of the mucosa along the rigid part of the stomach.

Dr. Richardson: I want to play down that lesion.

Dr. Schulz: These swollen rugae are reminiscent of a case presented at this conference several years ago that proved to be merely gastritis with infiltration of the stomach wall.[1] Lymphoma of the stomach can also have this appearance.

Dr. Chester M. Jones: Would you be willing to say that this was not an extraluminal gastric lesion, but that it was in the mucosa?

Dr. Schulz: On the basis of these films I do not believe that one can tell.

Dr. Richardson: Now for the diagnosis. If one takes the eosinophilia seriously, what does one have to consider? I am not going through

all the possibilities, but some of them have to be considered seriously.

It do not know much about Loeffler's syndrome, but it has to do with a pneumonitis and a high eosinophilia. It is relatively acute and benign. I am not up on the literature, but in cases coming from the Mediterranean area I have seen mention of eosinophilia and chronic pneumonitis that lasted for a year or more. I do not believe that any of these cases had an acute fulminating process of this sort. I have seen one patient in this hospital who had an eosinophilia with lesions in the lung, a picture that suggested to me Hodgkin's disease. In the course of a year, however, all the lesions disappeared, as did the eosinophilia, and the patient made a spontaneous recovery. In the present case the disease seems to me to be too widespread and too quickly fatal to consider this group, and therefore I cross them out.

I think that one can make out a good case for periarteritis nodosa, whatever that may be. It is a clinical hodge-podge when one tries to make of it a clear-cut clinical picture. This case does not follow the pattern that one encounters in the asthmatic type. There is no peripheral neuritis, no mesenteric thrombosis, no renal symptoms, and only slight evidence of any actual coronary involvement. Furthermore, I do not believe that we see such a chest picture in the usual type of periarteritis nodosa. It seems to me that the course is too acute for a case of periarteritis nodosa, and in spite of the eosinophilia I am going to throw that diagnosis out. Also bone lesions would be extremely rare with periarteritis nodosa.

Trichinosis can be fatal. When it is, I believe that it would cause a typhoid-like picture, which this patient did not show. There may be central-nervous-system involvement in fatal cases. Two skin tests were negative. If one is going to pay any attention to such tests it seems to me that they should have been positive in this case. I am going to rule it out.

Tumor seems to me the logical diagnosis in this case. There is widespread disease involving bone with lesions that Dr. Schulz says are consistent with metastatic tumor of the bone. There is a lesion in the stomach, and one can logically say that this patient had a tumor of the stomach with widespread metastases, or possibly primary tumor in the lung, with metastases elsewhere. Eosinophilia with tumor involving the lung is sometimes observed. I saw a case not so long ago with eosinophilia due to bone metastases from a pancreatic tumor, but if one is going to suggest tumor as a cause for eosinophilia there should be an accompanying anemia and changes in the blood characteristic of widespread bone-marrow involvement. This man had no anemia; in fact he had a polycythemia, probably due to a certain amount of dehydration and possibly accentuated by some anoxemia, although he is not described as being cyanotic. I do not get the feel from this case that it was malignant tumor. It was rapidly fatal without any of the really good localizing signs or symptoms that one would expect with a rapidly fatal tumor. It is the kind of death that one might expect from acute leukemia. Nothing suggesting this was observed in the blood smear. Then we have the lymphoma group. It is rare to see a case as quickly fatal as this in any of the lymphomas, unless one includes acute leukemias, which I have already mentioned.

The whole picture to me is that of infection, and whereas I say that tumor is the logical diagnosis, I am going to throw that out also. It may be an infection that I know nothing about or that I have not thought of, in which case there is no use in talking any more. The only infection that I can think of that might produce such an acutely fatal illness is an acute miliary tuberculosis. Does miliary tuberculosis cause eosinophilia? I do not remember having observed it, although I have not seen many cases. That is one point against it. The tuberculin test was negative, but the tuberculin test is frequently negative in overwhelming infection by the tubercle bacillus. So we can allow that. The third point against it is this osteoblastic activity in the bone, which one would think ought to be osteolytic. I am not sure whether tubercles scattered throughout the bone marrow can "tickle up" the osteoblasts enough to lay down a little bone. I do not, however, feel satisfied with the diagnosis of tuberculosis.

The diagnosis of acute bacterial endocarditis ought to be entertained, but again there is no evidence of embolic phenomena, and the bone involvement does not seem to go with it. I am trying to make a soft bed for myself by saying that tumor is the logical diagnosis, but I am going to cross that out and say that this man

had a fulminating infection, probably miliary tuberculosis.

Dr. J. H. Means: Dr. Napier is here, and I have asked him to comment on the eosinophilia.

Dr. L. Everard Napier: My remarks will not bear any relation to this case, but I have been in the tropics, where we see a good deal of eosinophilia, much of which we cannot understand. We call it idiopathic eosinophilia. Frequently we find it running up to 60 to 70 per cent without any obvious reason. Another aspect of eosinophilia in the tropics is the high eosinophilic count in the normal population, as compared with the figures one sees in the textbooks that are based on experience in temperate climates. We have taken counts of so-called "healthy people" in India and found an average eosinophilic count of 14 per cent. A good deal of this is attributed to parastic infestation. That is not the whole story, however. When we exclude infestation we find an average eosinophilia of the lung or eosinophilic pneupresence of eosinophilia would not excite me the same way that it does you here. The one thing you think of is trichinosis or trichiniasis—it should really be called "trichineliasis" to be correct—but we do not think of that in India because we scarcely ever see it. We have seen eosinophilia of the lung or eosinophilic pneumonitis, but it is essentially a benign disease.

Dr. Jones: I saw this patient and thought that he probably had a lymphosarcoma originating in the stomach. The chest findings were perfectly consistent with such a diagnosis, and the x-ray film of the stomach showed a curious mucosal pattern which was like that of several cases of lymphosarcoma of the stomach that I have seen. On the basis of this trabeculation of the gastric mucosa and the rest of the story, that is, the chest findings and the bone lesions, I thought that lymphosarcoma secondary to a primary focus in the stomach was the logical diagnosis.

CLINICAL DIAGNOSIS

Lymphosarcomatosis.

DR. RICHARDSON'S DIAGNOSIS

Miliary tuberculosis.

ANATOMICAL DIAGNOSIS

Carcinoma of stomach with metastases to the regional lymph nodes, pleura, lung, pericardium, peritoneum and vertebras.

Lymphatic spread of pulmonary metastases.

PATHOLOGICAL DISCUSSION

Dr. Castleman: Both lungs were voluminous and filled the entire chest cavity. Scattered over both pleural surfaces was a yellow-white lacelike network, which reminded me a bit of the lacteals in the intestines when they are ballooned with fat. This network was bright yellow in places and formed a pattern of the entire lymphatic system of the pleura. It was very striking. This pleural process involved the entire pleura and extended on to the pericardium at the pleural reflection. This same lymphatic engorgement was seen throughout the parenchyma of both lungs. We, of course, thought of metastatic carcinoma and focused our attention on the stomach. Along the lesser curvature we found enlarged lymph nodes adherent to the pancreas, but the pancreas itself looked normal. Along this curvature we also found a slightly rigid area 2 to 3 cm. long that was only superficially ulcerated. The mucosal folds, however, were prominent, and this prominence is undoubtedly what was seen in the x-ray and led Dr. Jones to think of a lymphoma, because lymphoma does spread in submucosal tissues and elevates the mucosa. Of course, carcinoma can also spread in that way. These mucosal folds were high and could not be depressed so that we knew there was something, almost certainly a neoplasm, beneath the mucosa. Microscopically all the lymphatic vessels in the pleura and lungs were plugged with nests of neoplastic cells, which proved to be those of a differentiated carcinoma. The primary lesion was, of course, the rigid area in the stomach; it had extended throughout the submucosa to involve the serosal lymphatic vessels, the peripancreatic lymph nodes and the peritoneum. The vertebral bone marrow was grossly involved, and it is surprising that the red-cell count was high. Two or three other counts were taken, and all were in the neighborhood of 5,000,000.

Dr. Richardson: If one had looked at the smear I suppose one might have found some evidence of red-cell activity.

Dr. Castleman: This lung picture of lymphatic spread of metastases has been recently described by Dr. Mueller of the x-ray department and by Dr. Sniffen of this laboratory.[2] About 70 per cent of all cases of lymphatic spread of cancer of the lungs come from the

stomach; they usually occur in young persons, and the course is rapidly fatal.

Dr. Jones: I think that it cannot be stressed too much that miliary lesions in the lungs may be due to many causes other than tuberculosis. One of the most frequent is metastatic malignancy.

REFERENCES
1. Case records of the Massachusetts General Hospital (Case 29421), New. Eng. J. Med. 229: 658-660, 1943.
2. Mueller, H. P., and Sniffen, R. C. Roentgenologic appearance and pathology of intrapulmonary lymphatic spread of metastatic cancer. Am. J. Roentgenol. 53: 109-123, 1945.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By Guillermo Osler, M. D.

This column recently resented the efforts of a well-known drug house to "help" the medical profession obtain a SYNTHETIC ADRENAL CORTICOID DRUG, for use with vitamin C in cases of rheumatoid arthritis. The reports were too controversial. . . In order to get an expert opinion, we have corresponded with a prominent arthrologist in Los Angeles. He has contributed to ARIZONA MEDICINE in the past, and has been of help in answering questions. . . . He says that a well-controlled study will shortly be presented at a medical meeting. The stuff is NOT valuable. (Actually the control cases, receiving distilled water, did better). . . . It is hard to see how the so-called successful series, even though small, could have been obtained.

Physicians are joining taxi-drivers in their rapport to a central office, VIA SHORT-WAVE RADIO. . . . Two hundred doctors in New York City will carry pocket-size receivers, with which they can receive calls from a telephone-answering service over a radius of 25 miles. . . . Each will have a number in code; the call goes through continuously; and the doctor answers by telephone—or keeps on playing golf.

The most logical and concise reason why socialized medicine is being pushed by the planners has been given by a Scot from London, Dr. Christopher Daniels. . . . "No nation in its right mind will accept Socialism or Communism. It must be introduced insidiously, through the emotions. BIRTH, DEATH, AND SICKNESS HAVE THE GREATEST EMOTIONAL APPEAL, and medical services are among the first to be attacked and taken over. A typical socialist trap is to bog the opposition down in arguments about the mechanism of the scheme, while the true meaning is being obscured. This situation is like polio—you don't know when you catch it, and by the time the paralysis is diagnosed it is too late."

The reports of GOOD EFFECTS from the use of curare ,procaine, cortisone, the antibiotics, etc., are invariably followed by reports of TOXICITY. . . . No method seems to be as good as it looks at first, and only a few reach a favorable balance between success and hazards. . . . We should learn, and promise ourselves never to forget, that the trial of a substance almost always proceeds along certain regular paths, and that there are obstacles for all of them—even water.

A 1949 paragraph on WATER can now be modified . . . a method of distillation from sea-water by high speed centrifugal evaporation is being developed. Engineers in California say that the process will soon be practicable, and the water will cost about $20 per acre-foot. . . . This compares with $15 for the Colorado river water in that area—and who knows, the latter might become less plentiful?

Now and then the newest drug turns out NOT to be the best drug. . . . Eisele of Chicago reports in the March Wisconsin Medical Journal that aureomycin plus streptomycin is NOT as satisfactory or sulfadiazine plus streptomycin for BRUCELLOSIS. . . . The results are from a series of laboratory animals and cattle. Aureomycin is bacteriostatic rather than bacteriocidal, and the organisms promptly grow after use of the drug is stopped.

An oblique emphasis on progress in medicine is the publication of a SECOND edition of a ten dollar book on "BRUCELLOSIS" (H. J. Harris, for Paul B. Hoeber, Inc.). . . . Undulant fever has a brief history and a new therapy (as noted above) but there is a large backlog of human cases and a huge animal reservoir to be eliminated. . . The ARIZONA STATE VETERINARIAN is considering the use of more stringent controls over imported cattle. An occasional beast flares up with Bang's disease after being certified as negative when entering the state, and the loophole should be closed.

A recent note about CIVILIAN MEDICAL JOBS in the Canal Zone can now be revised to read—"and Japan, Guam and Okinawa." . . . The Department of the Army is seeking physicians in several specialties for one or two-year tours of duty as medical officers. Salaries vary from $6,400 to $9,500. The age limit is 57 years. Dependents are permitted, and living quarters are free or nearly so. . . . The applications go to Civilian Personnel Division, 1660 East Hyde Park Boulevard, Chicago 15.

One only has to wander a little bit among the sciences to get lost, or badly confused. . . . The spring issue of "Cathode Press," published by the Machlett Company, shows us a dim otherworld. . . . On page 2 we find a drawing labelled "schematic axial cross section of Super Dynamex Anode," and on page 6 an article entitled "A Ceramic Planar Power Tetrode.' . . . This inferiority feeling could be erased by inviting an engineer to a clinical-path. conference.

Dr. Ralph Waters, teacher of many current anaesthetists and inventor of many methods, must have a tolerant smile now and then as he tends his roses in Florida retirement. . . . Dr. Waters was the earliest professor of his subject, and headed the department at the Wisconsin General Hospital. . . . If he reads the hospital journals he will see pictures of the methods used to pipe OXYGEN to the bedside through three miles of copper tubing and 330 outlets in New York's Presbyterian Hospital. . . . The reason for his tolerance lies in the fact that he had oxygen piped into the W. G. H. in 1934, where it has been the accepted means of supply ever since.

Dr. John Lundy is chief of the Mayo Clinic section on anaesthesia, and also one of the great authorities in that field. Any pronouncement of his should carry special weight. . . . When he describes AN AUTOMATIC DEVICE TO REGULATE THE FLOW OF AN ANAESTHETIC as "fabulous," it should be just that. . . . The equipment contains an electroencephalograph, and the variation in "brain waves" determines the patients reaction. . . . The apparatus has actually been connected to the syringe which delivers an intravenous agent, and is said to control it well.

We have recently seen the report of a wonderful COMBINATION OF HEALING AGENCIES. . . . A Boy Scout was given a high award for his activities, which included hiking and other physical exercises. . . . He has been very active in civic affairs and in the Catholic Church. . . From birth until the age of ten he had a long series of operations to repair a clubbed and rotated foot. . . . The surgery was done through the aid of a Shrine Hospital, and he and his family are very grateful. . . . This sounds like Brotherhood—and it is also possible that some of the doctors didn't have ancestors on the Mayflower.

CARDIOVASCULAR CATHETERIZATION is a fashionable and valuable procedure right now. Quite a few articles are being published on its use in diagnosis, chiefly of congenital malformations. . . . It should be noted that the method is time-consuming, the pressures and blood analyses are difficult to obtain, and the data are hard to interpret. . . . Only a few clinics in the nation are capable of doing the job well—and that's the way it should remain for the time being.

We have blood banks, eye banks, bone banks, artery banks, etc., etc. . . . Now we have an "ICE BANK." . . . It looks suspiciously like a refrigerator, however, and is used in a hospital ward to produce ice in partially-filled pitchers for later use. . . . A 1950 ICE BOX.

Many unique answers to medical questions do not spring complete from the brows of professors. . . . A good example of this truism (if it is true) is THE HILLSDALE PLAN, started in 1948 by the Hillsdale County Medical Society of Michigan. . . . It was noted that 60% of the cancer cases treated in that area in 1946 involved the skin, breast, uterus, and rectum. Since all of these sites could be examined in the offices of physicians, without special equipment, it was arranged to make every office a cancer detection center. . . . Thirteen of the eighteen doctors in Hillsdale participate in the plan. A publicity campaign started the examinations at a high level, but the ball has continued to roll. . . . Several groups of patients are seen—women over 40 years who are seen by appointment; men or women of any age who request the routine examination; and patients who see their physicians recurrently for chronic diseases. . . . A specific history is taken, and the skin, mouth, throat, neck, breasts, heart, lungs, abdomen, genital organs and rectum are examined. The urine is tested, and a blood count is done if anemia seems evident. X-rays and biopsy are arranged if indicated. Re-examination is suggested at intervals of six months. . . . Many non-cancerous abnormalities have been found, and suggestions made for management. . . . The usual cost of the study has been $4 or $5. More than 1,500 original examinations were made in the first 18 months of the plan, and 54 cases (3.5%) of cancer were found, though only about 17% of the females over 40 in Hillsdale were examined.

A TESTING PROGRAM for substances which may be of value as replacements for natural hormones is gradually being formulated. The object is to find a compound which will replace a func-

tion of the hormone, and for which a test is available. . . . Examinations for the number of lymphocytes or eosinophiles, the sodium-potassium balance, etc., can be made on an animal. The adrenals (source of cortisone) are then removed, the substitute compound is then given, and the blood cell and chemical levels are noted to decide its efficiency.

The recent tendency has been to TREAT DIABETES with a "free" diet, combined with insulin, and little attention paid to the blood or urine sugar levels. . . . This is the path of least resistance for both the physician and the patient, and certainly the dream method for the patient. . . . The disadvantages are real, however. It is uneconomic, since more insulin is needed. It is hazardous to the pancreas, since hyperglycemia damages the islands of Langerbans. It may produce fatty degeneration of the liver. It also forms bad habits.

If a doctor applied for a job in the Arizona State Health Department, and then came to visit in Phoenix, the obvious conclusion would be that the two events were associated. . . . They could be, except for the notorious VERSATILITY OF PHYSICIANS. . . . A recent trip by Dr. R. Esmond Smith, member of the Los Angeles County Sanatorium Staff, and one-time medical missionary to Beirut in Syria, was made only in part to survey the Arizona job, and primarily to help found a parish of the strict and fundamentalist Scotch Reformed Presbyterian Church!

AN INTRODUCTION TO DIANETICS

LLOYD F. SMITH, M. D.,
Monrovia, California

You are walking down the street. A stranger stops you. "Pardon me," he says. "Are you Doctor White? Fine. I have discovered something so important that it ranks with the discovery of fire. With my discovery I can cure every psychosomatic ill, every neurosis, every psychosis. Are you interested?"

If that happens to you tomorrow, how do you expect to react? Wig-wag for a cop to grab the stranger until an ambulance can whisk him to a mental hospital? Laugh at this gigantic claim? Sit down with the stranger and listen to what he has to say?

That little story told above is no story out of a fairy book. It is something that has already happened. The stranger's name, L. Ron Hubbard. His address, Elizabeth, New Jersey. His claims stated in a book, Dianetics, published 1950 by Hermitage House, N. Y. The claims in the first paragraph above come almost verbatim from page ix, the very first page in his book.

Ordinarily we might like to dismiss such claims and go about our business. But the book Dianetics has hit best seller lists, and a foundation for Dianetics has been established in Elizabeth, N. J., or so I understand. Patients start to ask about it. Probably the best thing to do is to look into Hubbard's theories and see if we can understand part of them.

To explain his system of Dianetics, Hubbard has coined many new terms. His glossary defines thirty-five such new words, and throughout his book he adds possibly another fifteen or more. At least four words we might examine here—dianetics, analytic, reactive, engram.

Dianetics, says Hubbard, comes from a Greek word "dianoua," which means "thought." He uses the word to cover his new "science of mind" or Dianetics. At times Hubbard talks as if we have two minds, again as if we have one mind with two or more arbitrary parts. The terms analytic mind and reactive mind come in for constant mention.

Analytic mind is the mind or part of the mind we all admit and feel rather proud of. By it we are aware of "I," we remember things, we reason and compute. It bears marked similarity to what psychiatrists call the "conscious mind."

Reactive mind is the mind or part of the mind that was hidden, unknown until Hubbard discovered it. It has some resemblance to the "subconscious mind" of psychoanalysis. However, the reactive mind never sleeps. It is always there to plague us and to drive us into acts that we know, with our analytic mind, may be foolish, dangerous, criminal and so on.

Engram is the thing that makes our reactive mind such a nuisance. Hubbard defines the engram both as any period during which the analytic mind shuts down, and the total content of that period which the reactive mind records.

It works something like this. The analytic mind functions more or less all the time except under certain circumstances. Injury, illness and drugs seem to be three things that shut down the

analytic mind. With the analytic mind shut off, the reactive mind comes into its own and makes a record of everything that goes on. So, between the analytic and the reactive mind we have a continuous record stored within us, a record of our entire life. When Hubbard says entire, he means entire, from conception to death.

If only our analytic mind could work in peace, all would be well. But our analytic mind is not as rugged as our reactive mind. If we crash our auto and get stunned for a moment, out goes the analytic mind, in comes the reactive mind to record what goes on. Should we be very sick, say with a high fever and delirium of pneumonia, again the reactive mind takes over. Or drugs may do it, such as a big dose of barbiturate, or alcohol, or ether during an operation.

Hubbard does not locate this reactive mind, nor does he even identify it with the nervous system. He does not assign it our ordinary "sensation," but rather says it records on a "cellular basis." It acts like a perfect sponge to soak up everything going on. Everything the reactive mind records becomes the engram. The engram contains all the physical and emotional pain of that period of unconsciousness, everything, too, that bystanders say or do while the analytic mind shuts down.

Most dangerous of all seem to be any words spoken while we are in this state or stupor or apparent unconsciousness. The reactive mind has trouble with words. Having a submoron mentality, our reactive mind takes everything literally. It has no sense of humor, no ability to enjoy simile, metaphor or allegory.

Recall the famous story of a station agent who could not distinguish the kinds of pigs. To that Irishman for all time "Pigs is pigs." He could not distinguish between the barnyard hog and the laboratory Guinea pig. As a result he was swamped by Guinea Pigs, while he tried to figure out if there might be a time when "Pigs is pigs" does not apply. The reactive mind thinks in similar terms.

For instance, we may do harm whenever we talk in the presence of some one injured, very ill, or under the influence of drugs. If we visit a child delirious with meningitis, we should not say a word. If we say, "It's finished," meaning that you are ready to leave, the child's reactive mind may record that and use it to finish up the child's days on earth. Our reactive mind, says Hubbard, "thinks" only in terms of identity, our analytic mind in terms of difference and similarity.

Engrams, or what happens in moments of shut down by the analytic mind, lie at the root of all evil. Consider a farm boy riding a horse. He falls off. His head strikes the ground. For a time he is "unconscious," or at least his analytic mind shuts off.

If the boy falls off the horse out in the fields, he is lucky. With no human near, he has not too much to worry about. His engram during his time of "unconsciousness" will contain chiefly his bodily pain, plus such things as the hoofbeats of his horse.

On the other hand, suppose he falls off as he rounds the corner of the farm barn, just back of the house. Mother and father may hear him fall. They run out. Mother screams, "My poor baby. He's dead." Father looks disgusted, "Fool kid. Get up."

According to Hubbard the reactive mind takes all this in, records everything. Worse still, it takes it literally. Buried in that engram forever may be the conflict from orders to the boy to be "poor baby," "dead," "fool," "get up."

Not that this all follows at once. The engram has to be "keyed-in" at some later date. "Keying-in" an engram seems to be the restimulation of all or part of the content of the engram by a somewhat similar incident. Suppose in later days the farm boy moves to a city. He is playing tag in a vacant lot and hiding in the weeds. A cop has been called to drive the kids out of the lot, since a neighbor objects to the shouting incident to the game of tag.

So the cop comes upon the boy hiding in the weeds. The cop feels grouchy. "Fool kid. If you're not dead, get up." The words "fool," "dead," "get up" all "key in" the previous engram, and begin their deadly work. By engrams we become slaves to chance words. The "Tyranny of Words" so ably presented by Stuart Chase appears mild by comparison to the "Tyranny of Engrams."

All our lives we go on collecting these engrams, dozens, or hundreds of them. Engrams enslave us, make us neurotic, drive us insane. Behind every act we disapprove of in others, from murder to war, lies one or more engrams. Instead of blaming ourselves for what we dis-



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RESEARCH IN THE SERVICE OF MEDICINE SEARLE

like most about ourselves, we should blame our engrams. Hubbard insists strongly that he studies in engrams not what the individual does, but what has happened to or been done to the person in engrams.

If this be true, then our prime care should be to prevent engrams when possible. For this we preserve absolute silence around any one injured, ill, drugged. The engrams we already have we must get rid of. Should we once get rid of all our engrams, we become a "clear," an ideal person, better than any one ever seen on this earth up to now. Compared to any one today who thinks he is "normal," the "clear" would be a superman.

Through Dianetics, Hubbard says he can get rid of, or erase, or release the engrams. How? We must find a way to go back and re-experience the whole incident when the engram occurred, when we were "unconscious. Hubbard seems to insist that we do this by "returning," and he emphasizes that he does not mean mere recalling or remembering. Just what he means seems hard to grasp, and he admits that the only way to know is to follow his directions. For the moment his "returning" seems to be the attempt to vividly recall in minute detail all that happened during the moment of "unconsciousness," just as if it were happening again.

By his method we "return" to the engram, and keep going over and over it. Sooner or later the engram will erase or disappear, and be filed again under standard memory of the analytic mind. Gradually, as engram after engram lifts, we come into the fullness of our human potential. The drag of our reactive mind stops. Our analytic mind comes into full play. We are "clears" beyond the dreams of Zarathustra who spoke to Nietzsche.

What makes all this harder seems to be that engrams which matter most come before birth. More, engrams may begin at or shortly after conception itself. How then can we hope to touch those events and get rid of them? Easy, says Hubbard. To "return" to your prenatal life and re-experience what happened to you during prenatal life we find simple by his method of reverie.

When I first bumped into this claim that we could at will study our prenatal days, from conception onwards, I pulled up with a start. It made me feel the same way I did my first day as interne in a mental hospital. The first patient I met inside the locked door approached. I smiled and nodded to him and said, "Hello. And who are you?" That patient looked at me coldly, and spat at me one sharp word. "God," he said, and stalked on. Since then, what other people say does not startle me as much.

So Dianetics says that we must go to our prenatal days and re-experience over and over again the engrams that happened then. But you say that the fertilized egg will not get injured, very ill, or drugged. Not so, says Hubbard. The fertilized egg gets hurt during intercourse, bumped hither and yon. Mother pokes at it with whatever she has handy to try to abort it. When she gets constipated and bears down hard in her attempts at a bowel movement, baby again gets squeezed and hurt enough to produce an engram.

Douching bothers baby. Bumps of mama's belly on the kitchen sink do the same. Birth itself becomes a severe engram, as the uterus and abdominal muscles push and shove us towards the outer world. Baby changes from the picture of folk-lore as a "dear little thing, cuddled close beneath mother's heart" to a much abused child. During any or all of such types of "injury" to baby, every thing that goes on around it records on the engram bank.

If mother talks to herself, beware. As she strains at her stool, or fiddles with her slippery ellum to try aborting the baby, she may talk and the words register on the fetal engram bank. This is no attempt at sarcasm or humor on my part. I merely am trying to report what Hubbard says in his book on Dianetics.

How then shall we be cured of our engrams? We have an auditor who helps us to get well, who guides therapy. To show how an auditor works, I quote from pages 199 to 202 of Dianetics. In these quotes everything is taken literally from Hubbard except the few parts in parentheses which are marked with a (*).

"The patient sits in a comfortable chair or lies on a couch in a quiet room, where perceptic distractions (*i. e. sensations*) are minimal. The auditor tells him to look at the ceiling."

"Auditor: Look at the ceiling. When I count from one to seven your eyes will close. You will remain aware of everything which goes on. You will be able to remember everything that happens here. You can pull yourself out of anything which you get into if you don't like it. All

right (slowly, soothingly): One, two, three, four, five, six, seven. One, two, three, four, five, six, seven. One, two, three, (patient's eyes close and eyelids flicker) four, five, six, seven. (Auditor pauses.) (*At this point the auditor inserts the 'canceller'*.) (. . the canceller is vital . . . a contract with the patient that whatever the auditor says will not become literally interpreted by the patient or used by him in any way.)

"Canceller. . . . In the future when I utter the word Cancelled, everything which I have said to you while you are in a therapy session will be cancelled, and will have no force with you. Any suggestion I have made to you will be without force when I say the word Cancelled. Do you understand? All right, let us go back to your fifth birthday . . . (*or any other time, such as the earliest moment of pain in your prenatal life*)."

"(Work continues until the auditor has worked the patient enough for the period.)" (*Hubbard says the time spent in each therapy session averages two hours.*)

(*At the end of the time the auditor says*) "Come to present time. Are you in present time? (Yes.) Cancelled. When I count from five to one and snap my fingers you will feel alert. Five, four, three, two, one. (Snap.)"

What Hubbard calls "work" in the "dianetic reverie" consists of "returning" to the engrams and going over and over them until they erase, or disappear, to be refiled under standard memory in the analytic mind.

This reverie looks like a mild form of hypnotism. Not so, says Hubbard, since in hypnotism the patient goes to sleep. Also hypnotism suggests things to a patient while dianetics "returns" him to a point of time. How the auditor's words like "Return to . .", "Contact that more closely . . ", "Continue to repeat . . " and so on fail to equal suggestion is a fine point here. Somehow I fail to see the distinction.

As with any book that is meeting the ovation such as Dianetics gets in some quarters, we can not say the last word. Some people believe every word written in the book. The few persons whom I have personally known thus far, who have started Dianetic therapy, enthuse over it. Others laugh at the whole idea as too absurd to talk about.

Has Hubbard found something? Even if the patients do not "return" as literally as Dianetics seems to claim, what actually does happen in dianetic reverie? I do not know. My own attitude resembles that of Montaigne as regards miracles. Montaigne said that even if he saw a miracle he would not credit his senses. And dianetic looks to me like a miracle.

As in so many things, argument is futile. Time will sit in judgment here as always. At least Hubbard is no piker. He has stuck his neck out, way, way out. "With the techniques presented in this handbook . . . (an) intelligent *layman* can *successfully* and *invariably treat all* psycho-somatic ills and inorganic aberrations." By "inorganic aberrations" he seems to mean all neurosis and all psychosis.

Again Hubbard does not try to conceal anything. He lays all his cards on the table and challenges us to experiment with it. He appeals to our fair play to judge not, but experiment. The future of dianetics may be worth watching. The book itself has hit best seller lists, and patients want to know about it. The Dianetic Foundation is said to be training professional auditors and branching out. In the end there may be something that Dianetics has to offer to modern psychotherapy. We can only wait and see.

You may like to ponder the two key sentences in the book. On page ix the book begins, "The creation of dianetics is a milestone for Man comparable to his discovery of fire and superior to his invention of the wheel and arch." I know of no boast in history to surpass that. The book ends on page 435 with a bit of wry humor and advice to those who try out its methods, "Good hunting." That is, I presume, "good hunting" for engrams.

A couple of decades ago I came on some doggerel somewhere, which in my vague recollection goes like this in part:

"It kin be jist so,
I dunno.
Jist so, coudda bin.
Then agin . . .?"

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PERSONAL NOTES

Dr's. PAUL CASE and **ARCHIE CRUTHIRDS,** Phoenix, attended the Pacific Coast Oto-Ophthalmological Society in San Francisco, California, May 29th.

WALTER CRAIG, Phoenix attorney, concluded the series of talks on Medical Jurisprudence, before the Staff of Good Samaritan Hospital, Phoenix, May 22nd. Short papers were also presented by **DR. CHARLES VAN EPPS,** Phoenix, on "Achondroplasia of the Fetal Skull;" by **DR. ROBERT CUMMINGS,** Phoenix, on "Spontaneous Rupture of the Bladder;" by **DR. L. C. McVAY,** Phoenix, on "Spontaneous Rupture of the Uterus," and by **DR. HENRY G. WILLIAMS,** Phoenix, on "Rupture of the Gallbladder."

The June Staff meeting of St. Monica's Hospital, Phoenix, was held on June 13th, and was devoted to a symposium on "Prostatectomy." **DR. PAUL SINGER,** Phoenix, spoke on "Perineal;" **DR. R. H. CUMMINGS,** Phoenix, on "Transurethral;" **DR. L. C. WORMLY,** Phoenix, on "Suprapubic," and **DR. L. L. STOLFA,** Phoenix, on "Retropubic Prostatectomy."

DR's AUDREY G. URRY and **WALLACE A. REED,** Phoenix, and **DR. C. CLARK LEYDIC, Jr.,** Tucson, have been certified as specialists in anesthesia by the American Board of Anesthesiology.

DR. JESSE D. HAMER, Phoenix, presided at the Rocky Mountain Regional Conference on Voluntary Health Insurance in Salt Lake City, Utah, May 20th. He is a member of the American Medical Association Council on Medical Service. **DR. CARLOS CRAIG,** Phoenix, attended as President of the Arizona Blue Shield.

DR. J. P. WARD, Phoenix, State Director of Public Health, spoke before the New Mexico Public Health Association Conference in Raton, New Mexico, May 15-18, on "A Health Officer Looks at a Mental Hygiene Program."

DR. JOHN GREEN, Phoenix, took part in a symposium on the "Temporal Lobe" at Atlantic City, New Jersey, in early June. He spoke on effects of surgical removal of portions of the temporal lobe. This was a meeting of the American Electro-Encephalographic Society.

The June Staff meeting at St. Joseph's Hospital, Phoenix, was held on June 9th and was devoted to a symposium on "Glaucoma" by **DR's. PAUL CASE, O. W. THOENY, P. McFARLAND, H. FRENCH** and **P. LOVELESS,** all of Phoenix.

DR. M. L. SUSSMAN, Phoenix, spoke on "Congenital Heart Disease" to the Staff of St. Mary's Hospital, Tucson, and on "Non-Tuberculor Chest Lesions" to the San Diego County Medical Society, June 13th.

The June Staff meeting at Good Samaritan Hospital, Phoenix, was held on June 26th, and papers presented on "Skin Manifestations in Systemic Diseases" by **DR. HARRY CUMMING,** Phoenix. **WALTER, E. LOX, Ph. D.,** Phoenix, spoke on "Non-Pathogenic Protozea as Causes of Amebiasis," and **DR. GEORGE McKHANN,** Phoenix, spoke on "Treatment of Amoebic Infestation."

DR. WILLIAM H. OATWAY, Jr., Tucson, has been appointed Superintendent and Medical Director of the LaVina Sanatorium, LaVina, California.

DR. MARCY L. SUSSMAN has been appointed Clinical Professor of Radiology at the University of Southern California. He will act in a consulting capacity in the research program.

Arizona Teenagers Recognized

The Bureau of Health Education of the American Medical Association, under the direction of W. W. Bauer, M. D., has been developing throughout the Nation, a series of transcripts on Teenage Health Problems. They will be released to broadcasting stations through local and State Medical Societies late this year.

The program is arranged featuring groups of high school students in various cities of the country participating in informal discussions. The topics have been chosen from questions most often asked by teenagers themselves, according to field work and research done through A.M.A.'s School Health Division. These questions are related to social and emotional adjustments as well as purely physical problems.

Only thirteen states will be represented, providing thirteen recordings for a thirteen week—thirteen minutes each broadcast. Phoenix, Arizona is fortunate in being chosen to represent the Southwest area.

On Friday, July 7, 1950, the stage was set. At 10 A. M. in the broadcasting studios of radio station KOY—Phoenix, assembled the cast, including four representative teenagers previously selected from among the local high school

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student bodies, Dr. Bauer and the Producers, Marshall-Hester Productions of New York, represented by its principals; the subject: "Smoking and Drugs." Following the transcription, it was reported that the people of Arizona might well be proud of its "teenagers" judging from their informed and intelligent response throughout the discussion.

Following the transcription, Dr. Bauer and the Producers, Mr. Marshall and Miss Hester, were luncheon guests of the Arizona Medical Association, represented by Dr. Frank J. Milloy, Secretary; Dr. Robert S. Flinn, Councilor-at-Large, and the Executive Secretary, joined by members of its Auxiliary, Mrs. Benjamin Herzberg, President; Mrs. George S. Enfield, Vice-President and Program Chairman; and Mrs. Jesse D. Hamer, Parliamentarian of the State and Officer-Director of the National Organization.

Health education problems and proposed projects were considered.

Respectfully submitted,

Robert Carpenter,
Executive Secretary.

National Education Campaign American Medical Association

Chicago, June 12.—The American Medical Association, by unanimous action of its Board of Trustees and Campaign Coordinating Committee, has given the final "go ahead" signal for a Nationwide advertising program which will include three principal media — newspapers, magazines and radio — as a new phase of its National Education Campaign in behalf of Voluntary Health Insurance and against socialized medicine.

Clem Whitaker and Leone Baxter, directors of the A. M. A.'s National Education Campaign, announced authorization of the advertising program today and stated that the ad campaign will be launched in October.

A total advertising budget of $1,110,000 has been approved by the A. M. A. Board of Trustees, it was announced, with $560,000 allocated to newspapers, $300,000 to radio and $250,000 to National magazines.

The newspaper advertising schedule calls for blanket-coverage of every bona fide daily and weekly newspaper in the United States—approximately 11,000, in total—and the copy is scheduled to run during the week of October 8th. Newspapers in the territories of Hawaii and Alaska will be included in the schedule. The space reservation will approximate 70 inches (probably a 5 x 14) in all papers.

About 30 of the leading National magazines, and a score of advertising trade publications, will be included in the magazine ad program.

The radio advertising program calls for an intensive "spot announcement" campaign, utilizing time on some 300 radio stations, covering every State and Hawaii and Alaska.

The magazine and radio campaigns also are scheduled for October.

"This is not an institutional advertising program," said the Whitaker & Baxter announcement.

"The American Medical Association is embarking on a Nationwide advertising program for two reasons. First, it is determined to aid in every way possible in increasing the availability of good medical care to the American people through the medium of Voluntary Health Insurance. In that respect, the advertising copy will be designed to make the American people 'health insurance conscious' and to encourage the extension and development of prepaid medical and hospital care as a means of taking the economic shock out of illness. Second, American medicine is determined to alert the American people to the danger of socialized medicine and to the threatening trend toward State Socialism in this country.

"The ad copy, in part, will be designed to sell a commodity, Voluntary Health Insurance, but not any particular brand or plan. The individual will be encouraged to secure sound coverage in the plan which he feels best suits his individual needs. In its second aspect, the ad copy will be used to mobilize public opinion in support of a basic American idea—the principle of individual freedom, as opposed to the alien philosophy of a Government-regimented economy."

It was announced that the following advertising agencies have been selected to handle the buying of space and placement of copy:

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It cost short term hospitals an average of $14.33 to take care of a patient for one day during 1949, it is reported by the American Hospital Association, parent organization of the ninety Blue Cross Plans. The quoted figure, based on the Association's annual survey of more than 6,000 hospitals in the United States for the year ending last September 30, is up from the $13.09 it cost in 1948 and from the $11.09 figure for 1947.

The Association's report showed a $13.94 per patient day cost for Arizona short term hospitals in 1949, thirty-nine cents below the national average.

The income of the nation's general hospitals as a whole came nearer to meeting costs of care provided than it did in 1948, the survey revealed. However, the income per patient in all hospitals was $2.59 a day less than it cost the average hospital to care for him.

"Hospitals' healthier financial condition during 1949 was reached in a period when many more patients were cared for, and they more nearly paid the cost of that care," said George Bugbee, executive director of the American Hospital Association.

Patients in *short term non-profit hospitals* paid $138,129,000 less than the hospitals' expenses, the American Hospital Association reports. This deficit amounted to $1.56 for each patient daily. Money to pay for this came from sources other than patients. Some of these sources were endowments, contribuations, and payments by governments for care of people who couldn't pay.

Hospitals' expenditures were up half a billion dollars in 1949 over 1948, to a new high of $3,500,000,000, according to the American Hospital Association survey.

Almost 18,000,000 Americans were hospital patients during the year—one in eight, the survey shows. This was just a million more patients than in the previous year.

Patients didn't stay in general hospitals as long in 1949 as in 1948. The average stay was 8.3 days, or almost a half day less. This was due in part to improvements in medical and hospital care. Because they recovered more quickly, patients can be said to have saved 617,109 days in the hospital, the Association said. At an average $14.33 per day, this would amount to a saving of nearly $8,000,000 to the nation's pocketbook.

More hospital employees were there to care for patients during 1949 too, the survey found. For each 100 patients, short term hospitals (except Federal hospitals) had 169 employees. This was seven more per 100 patients than in 1948. The increase in employees was influenced by the trend to a shorter work week for hospital personnel, and to other continuing improvements in patient care and service.

Total "Book Value" of American Hospitals was almost $7,000,000,000 in September, 1949, a half billion dollars more than in 1948. This amounted to an average investment of $4,800 per bed, the American Hospital Association states. In short term hospitals (except Federal), each bed represents an average investment of $8,255. This is $410 over the 1948 estimated investment. New hospitals and additions built during the year cost many thousands more than $8,255 per bed.

ON THE RECORD—Arizona Blue Shield enrollment passed the 60,000 mark during June—the exact figure at the end of the first half of 1950 being 60,092, a net gain of 8,255 since January 1. The records show that the Blue Shield Plan paid a total of $220,840.75 in subscriber benefits during the first six months of this year, as compared with $302,994.57 during 1949. The 1950 payments covered 4,232 cases. Total of cases in 1949 was 5,425.

Enrollment in Arizona Blue Cross was 115,134 at the end of June, a gain for the six-month period of 5,302. Blue Cross paid 8,131 hospital bills for members in the first half of 1950, with the payments to hospitals for the period totalling $520,871.31. During 1949 Blue Cross paid $912,674.13 to hospitals for members' care, the payments covering 14,355 cases.

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WOMAN'S AUXILIARY

CONVENTION REPORT

The twenty-seventh Annual Meeting of the Women's Auxiliary to the American Medical Association was held in San Francisco, June 26th to 30th, 1950. The meetings were held in the beautiful Fairmont Hotel, high atop Nob Hill. Seventeen hundred and three members of Auxiliaries from the forty-eight state, District of Columbia and Hawaii were registered. This group represented an organization, which has a membership of 53,606, an increase of 5,000 over last year.

The delegates had little doubt as to the role of Doctors' wives in the year 1950—the pertinent theme of the meeting being, of course voluntary medicine versus compulsory health insurance and how best the Woman's Auxiliary could back the A.M.A. in its fight against government control.

Round Table discussions on TODAY'S HEALTH, Legislation, Public Relations, and Program, at which the National Chairmen served as leaders, were held on Monday. These were most interesting and instructive, as they gave an insight into the many and varied projects which the individual auxiliaries undertake to further their aims—from writing thousands of personal letters to lay organizations to secure endorsements, to forming speakers bureaus, to Florida's super-charged activity in helping to "exterminate" Senator Claude Pepper, (as it was so graphically described by vivacious Mrs. James L. Anderson, President of the Florida State Auxiliary).

Tuesday, June 27th, the Convention was formally opened by the National President, Mrs. David B. Allman. For Mrs. Allman's report, which was given during this meeting, we hope you will read your August BULLETIN. It will give you an idea of how hard and diligently your National Officers work during their year of tenure. Mrs. Allman traveled thousands of miles to visit State Auxiliaries, held countless meetings and conferences and had voluminous correspondence in carrying out the work of the National Auxiliary. She was ably assisted by the President-elect and the officers of the Board and gave them her sincere praise and appreciation.

The reports of the National Officers and Standing Committee Chairmen followed. TODAY'S HEALTH chairman, Mrs. Herbert W. Johnson, produced a most interesting and enlightening chart, which showed that only four State Auxiliaries had reached 100% of their quota, and only six had achieved 50% or over. All the rest of the forty State Auxiliaries fell far below even the 50% mark. She stressed that the Magazine is worthy of more effort and that the doctors should feel a responsibility for ordering it since they asked the Auxiliary to promote it. She also stated that the Auxiliary should do a good job of promotion or admit failure and give the job up. A little more effort on the part of both would soon increase the sale and distribution of a magazine which is an excellent public relations medium. We were delighted to find that Arizona was one of the six states listed as having 72% of its quota, and it is hoped that next year we will go over the top into the 100% group.

The report of the Nominating Committee was read and the following names were on the slate:

Mrs. Harold F. Wahlquist.....Pres.-Elect
Minneapolis, Minn.

Mrs. Leo J. Schaefer.....1st V. P.
Salina, Kansas

Mrs. W. E. Hoffman.....2nd V. P.
Charleston, West Virginia

Mrs. Mason G. Lawson.....3rd V. P.
Little Rock, Ark.

Mrs. John Z. Brown.....4th V. P.
Salt Lake City, Utah

Mrs. George Turner .....Treasurer
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Mrs. Charles Shafer .....Constitutional Secretary
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Mrs. David B. Allman, Atlantic City, N. J.
Mrs. Scott C. Applewhite, San Antonio, Texas
Mrs. Ralph Eusden, Long Beach, Calif.
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Wednesday, June 28th, the second Session of the General Assembly was held, with Mrs. Allman presiding. After an impressive Memorial service, given by Mrs. Ralph Eusden, the Resolutions committee report was given and approved. These Resolutions included (1) the support of the A.M.A.'s twelve point public health program, and (2) the need to work for the inclusion of instruction on the Constitution of the United States in the curricula of the public schools.

The reports of the State Presidents were next on the agenda. Our State President, Mrs. Benjamin Herzberg, reported for Mrs. Charles E. Starns, the good work done by the Arizona Auxiliaries during the past year, and it received the attention it well deserved. All the state president reports showed clearly that the Woman's Auxiliary is no longer a purely social group, but one which is interested in every type of community endeavor. It is an active, fighting ally of the American Medical Association, from the youngest State Auxiliaries in New Mexico and Maine to the oldest in South Dakota.

The afternoon session saw the election of the National Officers and their installation by Mrs. Rollo K. Packard. As she presented the lovely diamond-studded President's pin to Mrs. Arthur A. Herold, who is, as one of the delegates expressed it, a "Whistler's Mother" type with snap, verve and a southern drawl, we all felt that Mrs. Herold, with her many years of service in the work of the Auxiliary, would carry on the good work done by her predecessors. Mrs. Packard, also, presented the Past President's pin to Mrs. Allman, commending her for the most successful year of great accomplishments which the Auxiliary enjoyed under her leadership. The generous orchid corsages and flowers given to the President and her co-officers made them look very festive.

Mrs. Herold's inaugural address, which will also be in your August BULLETIN, pledged true devotion to the cause and purpose of the American Medical Association and its Auxiliary and an honest endeavor to forward the work already started by her able predecessor. She called for the cooperation and help of the over 50,000 members of the organization, with which she could go ahead to the accomplishment of even greater things.

The Convention was not all work and meetings. A beautiful tea was held on Monday afternoon in honor of the National President and President-elect and State Presidents. A luncheon on Tuesday honored the Past Presidents of the Woman's Auxiliary, at which Dr. Ernest B. Howard, Assistant Secretary of the A.M.A. was the guest speaker. Dr. Howard urged the doctors' wives to push the sale of TODAY'S HEALTH, to help the doctors in their efforts to get the Nursing Associations to back Voluntary Health Insurance and to make resolutions against Compulsory Health Plans, and to work diligently, as citizens, in the forthcoming election in November to register all voters, and urge them to go to the polls and VOTE.

The luncheon on Wednesday, held in the beautiful Peacock Court in the Mark Hopkins Hotel, honored Mrs. Allman and Mrs. Herold. Mrs. Jesse D. Hamer of Phoenix, Arizona, ably presided and introduced the guests of honor, which included Dr. Ernest E. Irons, President of A.M.A.; Dr. Elmer L. Henderson, President-Elect, and others on the National Board of A.M.A.

The Woman's Auxiliary to the California Medical Association is to be congratulated on their hospitality and the wonderful arrangements made for the comfort, entertainment and perfect weather we enjoyed while in their superb City of San Francisco.

Official Delegates to the Convention from Arizona were: Mrs. Harold Kosanke and Mrs. Hiram Cochran of Tucson, and Mrs. Benjamin Herzberg and Mrs. George S. Enfield of Phoenix. Mrs. Royal W. Rudolph, President-elect, attended unofficially, but was present at all the meetings. This report has been compiled from the notes of all the above mentioned, and is duly set down here for your enlightenment and instruction.

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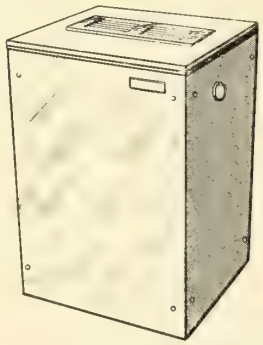
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(1) Thorn, G.W.; Quinby, J.T., and Marshall, C., Jr., Ann. Int. Med. 18:913 (June) 1943.
(2) Orent-Keiles, E., and Hallman, L. F., Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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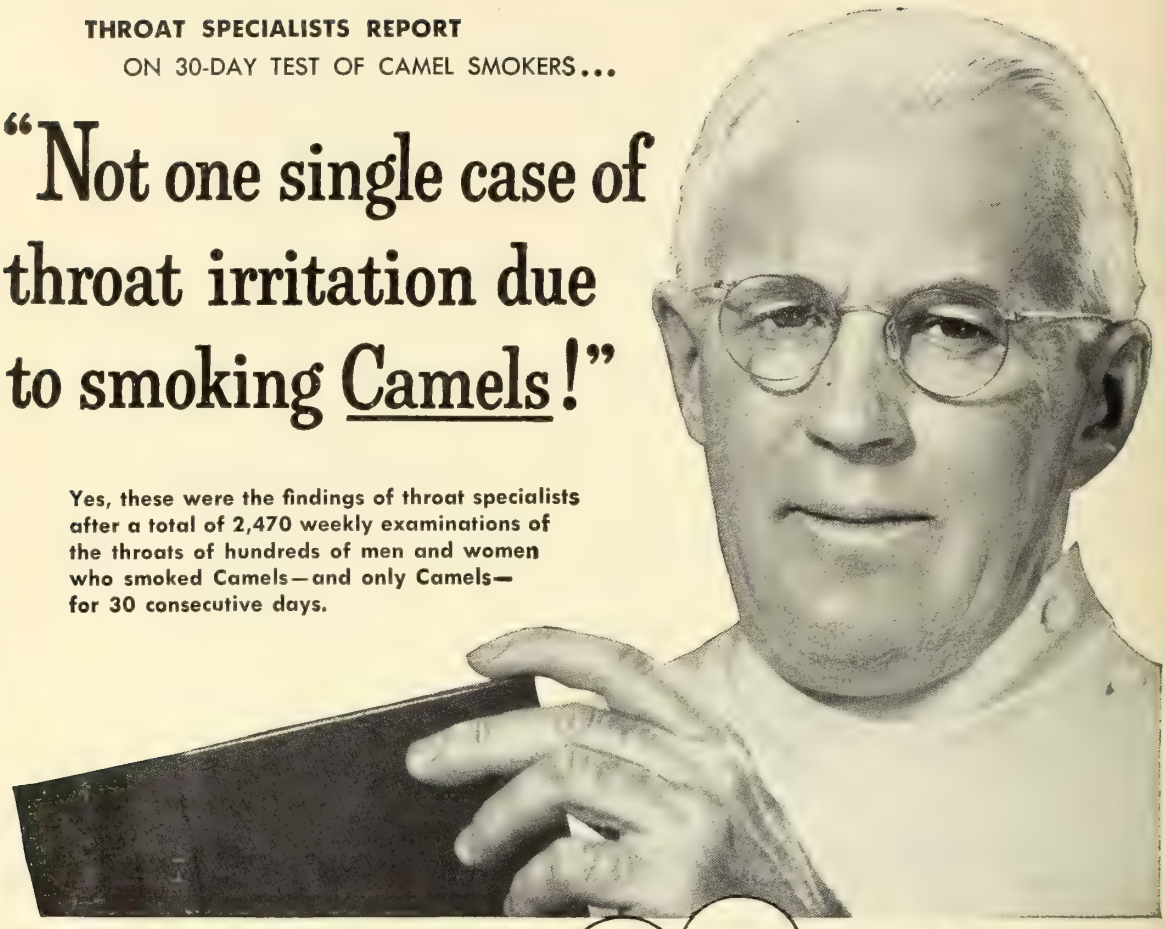
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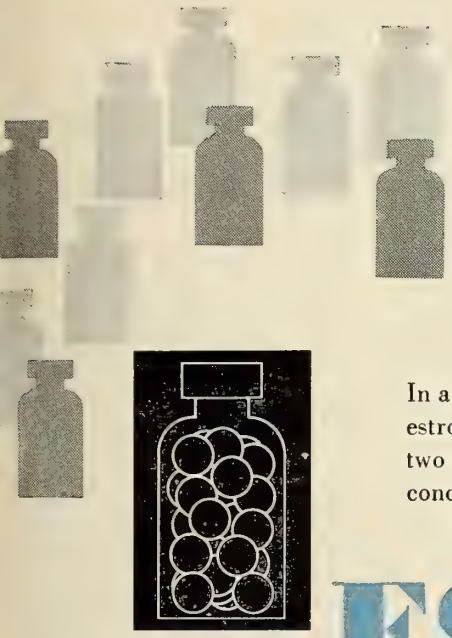


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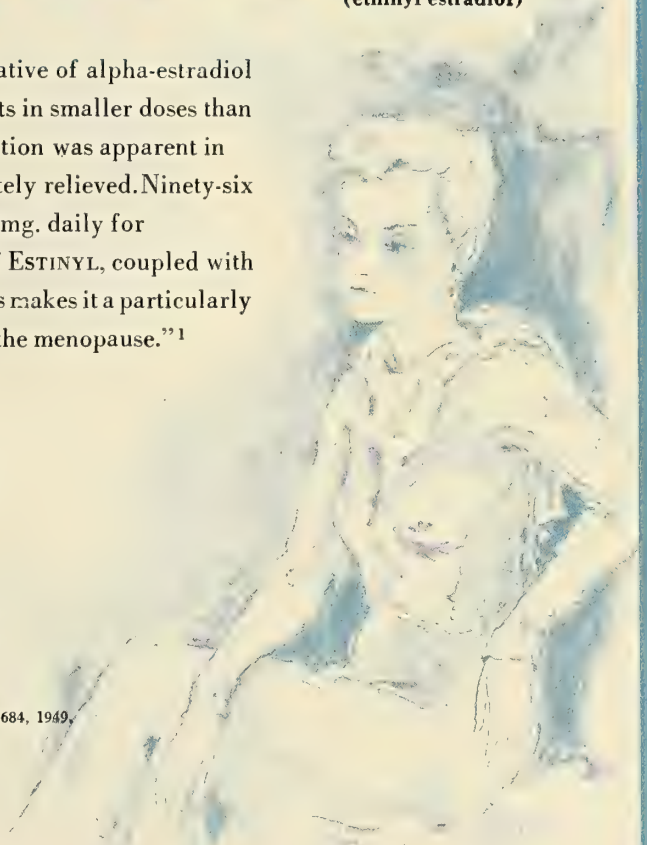
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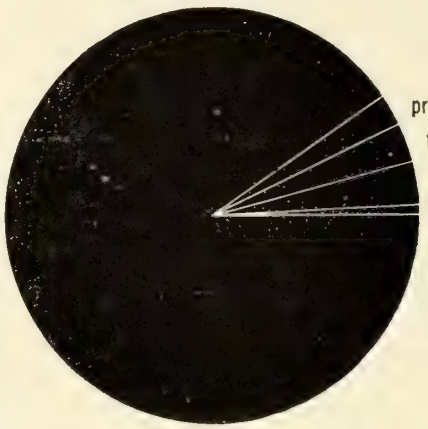
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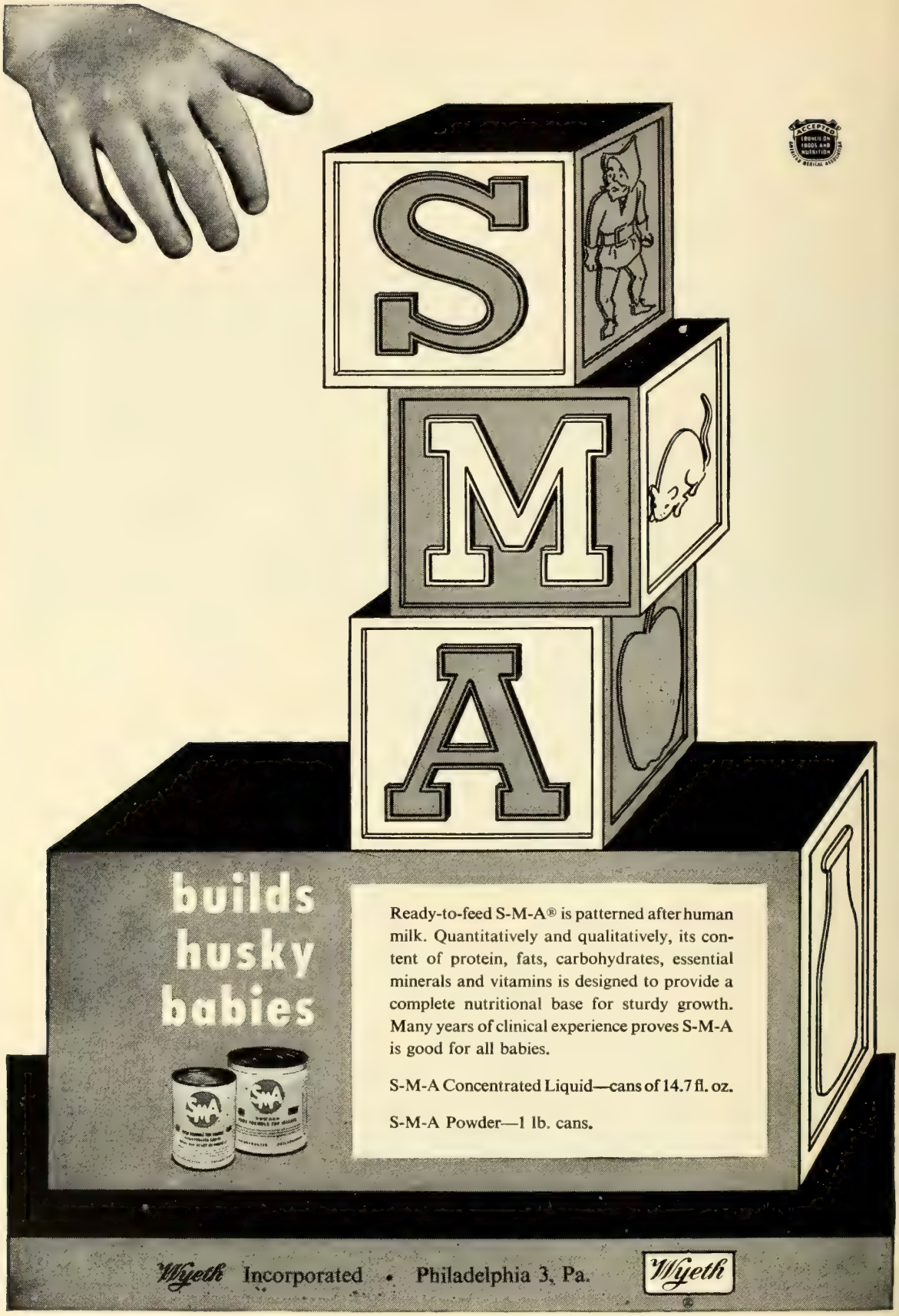
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1. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 5th ed., 1946, 704-705.
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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

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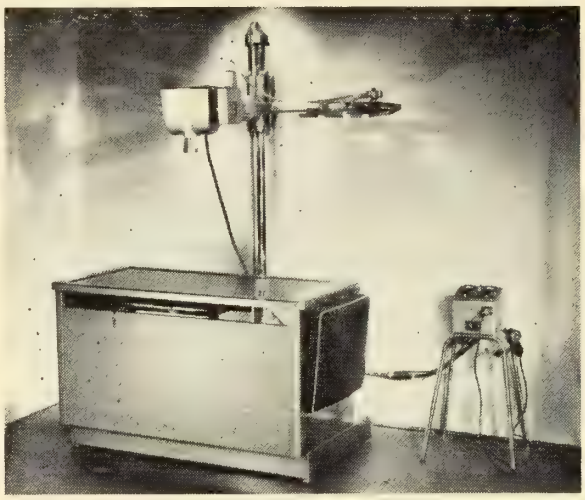
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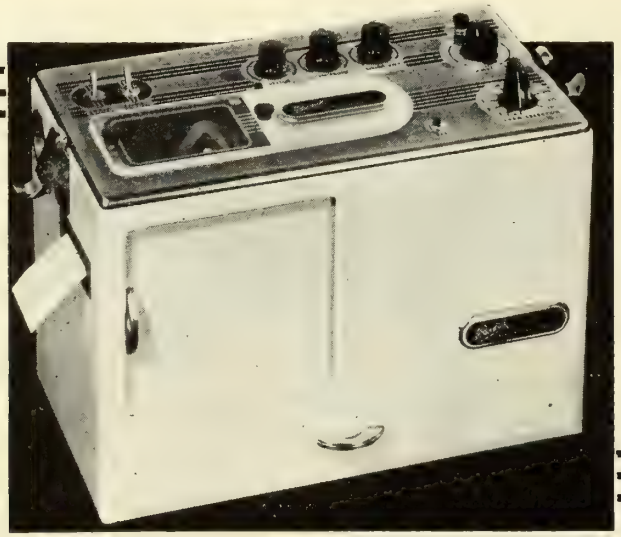
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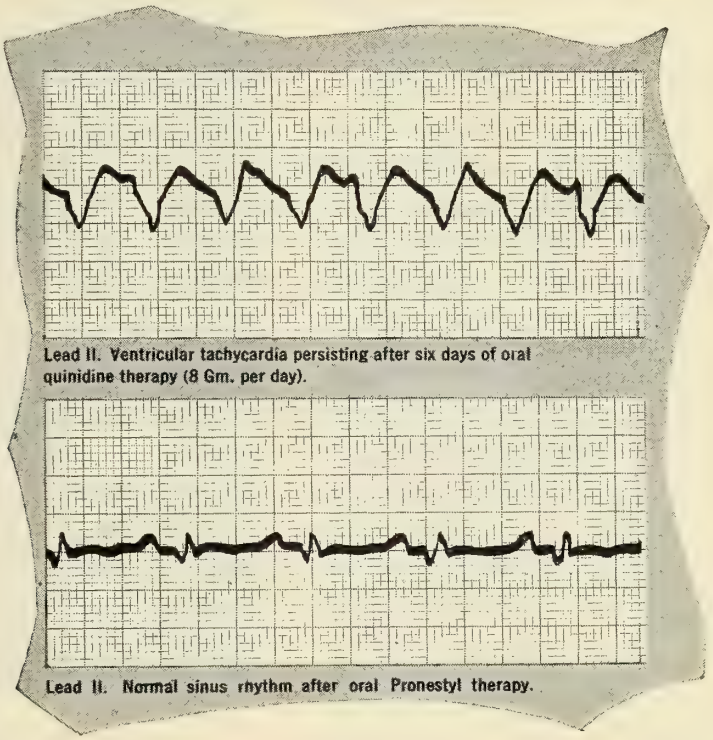
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[1]Cooke, R. A.: *Allergy in Theory and Practice.* Philadelphia: W. B. Saunders Company, 1947, p. 186

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ARIZONA MEDICINE

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THE MODERN TREATMENT OF MYOCARDIAL INFARCTION

STEPHEN R. ELEK, M. D.
Los Angeles, California

ACUTE coronary occlusion is a nefarious disease not only because its incidence is increasing, even in younger individuals, but also because seemingly simple complications may prove lethal. Thus, premature systoles are usually of no great importance; yet, in the presence of myocardial infarction, a fatal ventricular tachycardia or ventricular fibrillation may ensue. A patient may weather a post-operative drop in blood pressure but may die when this complicates the disease under discussion. Or, a pulmonary or systemic embolus may increase his morbidity or decrease his chances of survival even though the patient may be recovering both clinically and histologically from the infarct in the heart muscle. Fortunately, the spectrum of our therapeutic measures has also widened.

I have singled out for discussion those facets of this disease which represent the application of basic physiology to clinical therapy, those facets which are more amenable to treatment than usually recognized, and incidentally, those aspects of management which can also be applied to other diseases as well. No attempt is made to present the subject completely or thoroughly.

This presentation is divided into four headings:

(1) Use of dicumarol
(2) Treatment of pain
(3) Treatment of cardiac arrhythmias
(4) Treatment of the hypotensive stage.

Use of Dicumarol

The anti-blood clotting agent, dicumarol, acts primarily to reduce the occurrence of thromboembolic complications occurring in the course of this disease. There is tentative evidence[1] that it causes coronary vasodilitation. It very likely does not dissolve the blood clot in the coronary artery which formed prior to the administration of dicumarol. Wright[2] has made a careful statistical study of the benefits arrived from the use of dicumarol in eight hundred patients, using some three hundred and sixty-eight patients as controls; the controlled group did not receive dicumarol. The data are informative:

	Control %	Treated %
Mortality	24	15
Incidence of thromboembolic complications	25	6
Incidence by age groups:		
Under 50 yrs.	24	12
50 - 59	42	11
60 - 69	39	15
70	34	21
Incidence by week of illness:		
1st week	10	2-9
2nd week	13	5
3rd week	8.5	2.5
4th week	5.6	1.2

These figures indicate that the mortality, occurrence of thromboemboli, as analyzed by age groups and week of illness, are definitely reduced.

The secret of success is apparently ascribable to proper administration of this drug and hence the technique may be briefly summarized:

1. For the patient of average weight, 300 mgs. of dicumarol may be given the first day, 200 mgs. the second day, and appropriate doses each day depending upon the prothrombin time reading. For patients of less than the average weight, the initial dosages of dicumarol are proportionately reduced, although no figures can be given for this, inasmuch as the dosage is empirical.

*From the Department of Cardiology, University of Southern California School of Medicine, and Department of Medicine, Cedars of Lebanon Hospital, and Birmingham Veterans' Administration Hospital, Los Angeles, California.

Guest lecture delivered at the 49th Annual Meeting of the Arizona State Medical Association, May 2, 1950.

**The Author is greatly indebted to M. C. Birnkrant, Sidney Hinds and Herbert Granas of Los Angeles for the generous help they have given me.

2. The prothrombin time reading should be reduced to at least thirty seconds, or about three times the normal prothrombin time. Experience has shown that this is a useful guide. However, if the patient develops thromboemboli at this level, then the prothrombin time may be prolonged to about forty-five seconds. In brief, the prothrombin time should be maintained at the therapeutic minimum level or at that level sufficient to prevent clinical embolization. The prothrombin time level at which bleeding occurs varies in different patients. In one of my patients, bleeding did not occur despite a prothrombin time of ninety minutes. In another patient, evidences of hemorrhage were observed at fifty seconds. The point to be made is that thirty seconds is not a fixed figure and one should not hesitate to prolong the prothrombin time when indicated, provided the patient is carefully and frequently observed.

3. A daily dosage of 50 - 100 mgs. is usually sufficient to produce a prothrombin time of thirty seconds, but the dose of dicumarol may be increased or entirely omitted, depending upon the prothrombin time reading. In three patients, the initial doses of dicumarol alone, recommended above, were adequate to maintain the prothrombin time at forty-five seconds for five days.

4. Prothrombin time determinations should be performed by a reliable technician until about two or three readings indicate that the desired therapeutic leevl is attained. Subsequent prothrombin time tests may then be done about two or three times a week; with experience, one finds that daily tests are not necessary.

5. It is probably best for the patient to take dicumarol at the same time each day and to test a prothrombin time at the same time each day. In one patient, I obtained prothrombin time readings morning and late afternoon daily for about ten days and was pleased with the constancy of the tests. Other patients probably have daily fluctuations, suggesting why thromboembolism may occur in the presence of dicumarol.

6. Since dicumarol takes from twenty-four to forty-eight hours to prolong the prothrombin time, when should heparin, which has a latent period of only a few hours, be given? This question is not finally decided but I have found the following clinical guides helpful:

(a) When the myocardial infarct (as indicated by the electrocardiogram) is large and/or the clinical condition is poor.

(b) Whep the patient has had a recent previous myocardial infarct, e.g., during the preceding two to six months.

(c) When the patient already has thromboembolic phenomena upon examination.

7. Dicumarol should be continued, according to Wright's studies[2], for a minimum period of thirty days, or preferably for thirty days after the last thromboembolic episode.

8. Certain precautions should be observed. Vitamin C deficiency[3] enhances the action of dicumarol, and this possibility should be considered in the face of a stabilized therapeutic prothrombin time reading. Aspirin in certain (although figures are not available to be more specific) should probably be minimized or avoided since the two drugs are chemically related. Xanthine drugs should be used with reservation since they tend to nullify the effect of dicumarol by stimulating the liver to produce prothrommin.[3] Patients with advanced or chronic liver or renal disease should receive dicumarol only after careful consideration, for prothrombin formation is already reduced in a damaged liver and a blood clot in a diseased kidney may lead to azotemia and uremia.

9. Management of hemorrhage due to dicumarol toxicity. Since anti-coagulants are becoming more widely employed, more cases of toxicity will be encountered. I have seen at least four patients, in two of whom the bleeding was severe and prolonged. The treatment consists of:

(a) Immediate discontinuance of dicumarol.

(b) Transfusions of whole fresh blood.

(c) Use of Vitamin K preparations. Those usually recommended are menadione bisulfite (Hykinone) or Synkayvite. However, Miller[4] has adduced evidence to show that these water soluble Vitamin K preparations are not antagonistic to dicumarol and recommends instead the intravenous administration of 500 - 1000 mgs. of Vitamin K_1 or Vitamin K_1 oxide (menadione).

Treatment of Pain

The genesis of pain may be schematically described as follows: First phase: the area of myocardial ischemia leads to afferent nerve stim-

ulation. Second phase: the afferent nerve stimulus reaches a threshold of pain. Third phase: cerebral perception and interpretation of pain.

The drugs commonly used in the treatment of pain due to acute coronary occlusion are: morphine ,dilaudid, codeine, papaverine, demerol ,oxygen, and whiskey. Morphine, papaverine, oxygen and whiskey act on first phase. Morphine, as I have shown experimentally[5], is a mild coronary vasodilator. Papaverine is a powerful and longer lasting coronary dilator. Whiskey presumably acts to dilate the coronary vessels and may be prescribed on the telephone. Oxygen probably does not affect the caliber of the coronary arteries directly, but likely increases the oxygen gradient between the nutrient arteriole and the muscle fiber. Morphine, demerol, dilaudid, and codeine produce an affect on the second phase. This is somewhat theoretical, for once pain has occurred, the threshold for pain is usually not altered.[6] Morphine, and to some extent whiskey, influence preeminently the third phase of the pain mechanism. The action of drugs on the second phase is difficult to prove in man but a distinct affect on the third phase is demonstrable, in that pain becomes more tolerable and less unpleasant. Note that morphine influences all three phases and the pain mechanism. I believe that morphine is still unexcelled with regard to producing cerebral quietude and diminishing the marked anxiety which pain engenders. I have found it most advantageous to give morphine intravenously and in adequate doses. It is well known that subcutaneous administration requires thirty minutes or more for full action. In the presence of mild or severe shock, the absorption from subcutaneous area is even more delayed, as has been shown by the use of radioactive agents placed beneath the skin, so that overdosage is more apt to occur. The patient deserves relief from pain in the most rapid manner possible, In addition, pain stimulates the release of adrenalin, and when the latter is given to man experimentally prior to morphine, the pain threshold raising action of morphine is interfered with. Therefore, the longer the pain lasts, the less effective is morphine; or, expressed in another way, larger or more frequent doses will be required for relief. Intravenous morphine should be given slowly in order to avoid the sweating which follows rapid injection. I feel that the subcutaneous route in this acute disease should be discarded.

For the patient of average weight, 0.016 grams is the most effective dose. If this does not cause relief, 0.32 grams may be given, although the necessity for this dosage does not arise often. I have not seen respiratory depression when doses of 0.016 grams are given every three hours in the presence of pain. When the pain diminishes, less potent analgesics should be used. It should be noted that the requirement for morphine, as a pain reliever, varies depending on the degree of pain which the patient has.

Demarol does not allay apprehension usually and, furthermore, about 50% of patients develop dizziness; as one patient said to me, "I don't know which is worse: the pain or the dizziness." Demerol is very effective in painful conditions other than acute myocardial infarction in which there are no implications in the patient's mind of the occurrence of death.

It has been difficult for me to be sure whether or not oxygen alone, in high concentration, reduces pain, but it may act together with other analgesics; it also has a useful psychological value. In addition, mitigation of cyanosis is a desirable feature of treatment.

I believe it is worth emphasizing that rapid relief of pain by an agent like morphine, which allays apprehension and anxiety, is valuable both physiologically and psychologically.

Treatment of Cardiac Arrhythmias

As a complication of acute myocardial infarction, Master[7] found an incidence of 14% in three hundred patients, and Rosenbaum[8] an incidence of 38% in two hundred and eight patients. Even if this incidence were much smaller, arrhythmias are important because they may lead to or precipitate congestive heart failure, act as a source for emboli, and probably most important, cause death, particularly if ventricular tachycardia or flutter supervenes. Because of the latter consideration, I believe that the arrhythmias merit greater consideration than they have received.

In Master's[7] series of three hundred cases, the occurrence of individual arrhythmias was as follows:

Incidence of arrhythmias	14%
Premature beats	25%
Auricular fibrillation	7%
Auricular flutter	1%
Modal rhythm	13%
Paroxysmal tachycardia (all types)	3%
Heart block	3%

Premature systoles were the most common disorder of rhythm found. In the non-infarcted heart, they usually have no major clinical significance. However, Wiggers[9] has beautifully demonstrated that if one premature ventricular systoles strikes the "vulnerable" period (which occurs at the very end of systole), ventricular fibrillation ensues. When premature systoles occur frequently in the ventricle—and this is apt to be because anoxemia increases ventricular irritability—the chances of a fatal ventricular fibrillation are markedly increased. One can explain in this way the occurrence of sudden death in patients who are convalescing from acute coronary occlusion. Hence, alertness in detecting the presence of these premature beats and diagnosing their origin by the electrocardiogram is of superlative importance. When these extra beats are frequent, I believe the patient should receive oral quinidine, 0.2 grams every three hours. I have had excellent success, as I have previously published[10], with papaverine given orally in doses of 0.2 - 0.4 grams three or four times a day, or in doses of 0.1 gram administered slowly intravenously. The latter procedure I have found of exceptional value in patients in whom almost every other beat is premature, and in my publication[10] I have electrocardiograms on one such patient in whom the bombardment of ventricular extra beats completely disappeared. I believe it is worth recalling that our intensive work on papaverine has demonstrated that it is as effective as quinidine in diminishing or eliminating the extra systoles; in addition, it produces coronary vasodilitation, diminishes pain, and aids sleep.

Auricular flutter and fibrillation may last from a few minutes to a few days and will not infrequently disappear spontaneously. As a clinical estimate, if the ventricular rate is not over 120 beats per minute, then the cardiac reserve may not be exceeded. However, if the ventricular rate is faster than 120 beats per minute, and either arrhythmia does not vanish in from six to twelve hours, one should probably institute therapy. For auricular fibrillation, quinidine in doses of 0.2 to 0.4 grams may be given every two hours for five doses for rapid conversion. The same doses may be given, with slower affect, every three hours day and night until the fibrillation subsides. It is important to maintain treatment both day and night because quinidine reaches a peak level within two hours and is excreted to a large extent in about six hours.[11] This attention to dosage, based on a knowledge of absorption and excretion, often spells the difference between success and failure, which, of caurse, is true in many branches of therapeutics. If congestive heart failure appears as a result of this arrhythmia, then the patient should be digitalized first, and then if the auricular fibrillation does not cease, the patient should receive quinidine in the manner outlined.

With regard to auricular flutter, the best principle of treatment appears to be to digitalize first in order to convert the auricular flutter to auricular fibrillation. I have found it useful to inject 2 c.c. of Lanaticide C (marketed as cedilanid by Sandoz & Co.) every two or three hours. It is important to give just enough digitalis to switch the flutter to fibrillation. Once conversion of auricular fibrillation has occurred, digitalis is immediately stopped and about 50% of such patients will spontaneously convert to noormal rhythm in a few hours. Those who do not convert in twenty-four hours may need quinidine, as mentioned above.

The paroxysmal tachycardias are divided into supraventricular types (including auricular, nodal) and ventricular tachycardias. Paroxysmal auricular tachycardias are surprisingly rare. Since the auricular and nodal types of tachycardia usually cannot be differentiated, even in the electrocardiogram, they are considered together with respect to treatment. Like auricular flutter and fibrillation, they may last from a few seconds to several days and may disappear spontaneously. However, the ventricular rate is often faster than in the case of auricular flutter and fibrillation because of existing 1:1 conduction from auricle to ventricle. Probably the easiest procedure to try is unilateral carotid sinus pressure applied while the physician is listening to the heart beat. Perhaps the fastest abolition of the supraventricular tachycardia may be obtained by injecting slowly from 0.30 to 0.50 c.c. of 1% neosynephrine solution, as described by Youmans.[12] The latter has stopped these arrhythmias within forty-five seconds following injection. This drug has the added advantage of elevating the blood pressure (see the section on the management of hypotension). Many cardiologists[13] like to digitalize the patient intravenously (using for example 4 to 8 c.c. of Lanaticide C or cedilanid) and I have had success with this method. In all fairness, it should be

pointed out that Askey[14] objects to the use of digitalis in the presence of coronary occlusion. Quinidine is often valuable when used in doses recommended above.

Partial heart block requires observation rather than treatment. I have rarely seen complete heart block, nor is it a serious arrhythmia usually, since a slow ventricular rate allows for better coronary filling. However, when the ventricular rate is markedly depressed, and syncopal attacks take place, then I believe the most valuable agent available is Paredrine Hydrabromide 20 mgs. given orally in tablet form three or four times a day. There is good reason to avoid adrenalin in the presence of coronary occlusion because the latter may produce a fatal ventricular arrhythmia.

Paroxysmal ventricular tachycardia is considered a rare complication; that is due probably to the difficulty in obtaining statistics regarding its frequency. The following observation makes me think that it is more common than supposed. I once stayed at the bedside of a patient with acute coronary occlusion for about twelve hours and checked the heart rhythm about every fifteen minutes with a direct writing electrocardiograph machine. I observed all the arrhythmias mentioned in this paper, including ventricular tachycardia, which occurred in short bursts lasting five to fifteen seconds. It is no wonder then that ventricular tachycardia will escape clinical detection and that statistics regarding its incidents are difficult to assemble. Patients will recover from the short paroxysms just mentioned, but when it persists, the prognosis is ominous. Probably the swiftest treatment available consists of the slow intravenous injections of 5 to 1 0c.c. of 1 or 2% procaine solution or else the slow intravenous injection of 0.5 grams of procaine* dissolved in 500 c.c. of ordinary saline or distilled water solution. Procaine has a relatively short action in the body and I find it wise to also give the patient quinidine 0.4 grams every three hours, day and night, until the ventricular tachycardia disappears. I would also continue the quinidine for another twenty-four to forty-eight hours whilst checking the patient frequently in order to promptly prevent the occurrence of this arrhythmia. Intravenous morphine[15] has been reported to be helpful but I have not had a chance to try it. Magnesium sulfate (2.0 to 4.0 grams intravenously) may also be effective.

It is most important to remember that digitalis is contraindicated in ventricular tachycardia and hence the importance of verifying this diagnosis. The onset of this arrhythmia may be suspected in the presence of the following: onset of a sudden rapid tachycardia which fails to respond to carotid sinus pressure, slight irregularity of the ventricular rate on auscultation especially during respiration, a substernal or precordial ache or heavy feeling, signs of peripheral circulatory failure of varying severity in a patient who is otherwise doing well, and the cerebral manifestations of fainting or dizziness. An electrocardiogram should always be taken which will show an irregularity in the cycle length of at least 0.03 seconds.

With regard to ventricular flutter and fibrillation, I have noticed at the bedside that its onset is heralded by a deep gasp and convulsion and attended by very faint heart sounds. I have seen it last for about five seconds and disappear. Even this arrhythmia, I believe, is amenable to a therapeutic attempt. Experimentally, it is known—and I have done this myself on a number of occasions in dogs—that persistent rhythmic manual massage of the ventricle may restore regular beating. I do not think it would be amiss to make a quick incision into the left chest (while positive air pressure is being given by an anaesthetist) and massage the ventricular as we have done in dogs. Surgeons have performed this maneuver on the operating table with success. At the same time, procaine solution may be administered in the pericardium and possibly papaverine (0.2 grams) injected into the left ventricle. While working with Lindner and Katz on the fibrillating dog's ventricle, papaverine and manual ventricular massage has restored regular beating to the ventricle. Beck[16] has successfully defibrillated the human heart, in one case, with the use of special apparatus; the latter unhappily is, of course, not routinely available. But these ideas do intrude some therapeutic hope into a customarily hopeless disorder.

Treatment of Hypotension

A serious drop in arterial blood pressure oc-

*I am informed by Dr. D. H. Miller, of our Department of Cardiology, University of Southern California, that a new preparation, procaine amide, will shortly be available commercially. This is a more stable salt of procaine and is as well absorbed orally as intravenously. It is very effective in abolishing ventricular premature systoles and ventricular tachycardia. It can be given orally or intravenously in doses of 100-500 mgs. Wherever procaine is mentioned in this paper, the reader may bear in mind the new compound, procaine amide.

curred in 57% of Master's[17] two hundred and five cases; he felt that death usually took place if the systolic blood pressure fell below 80 mms. of mercury. In Mintz and Katz's studies[18], there was a fatality rate of 77.8% in patients exhibiting a shocklike state as compared with 20% in their entire series of five hundred and twenty-four patients.

The hypotensive stage may be thought of as that period when the systolic blood pressure has fallen to 90 mms. of mercury or less accompanied often by manifestations of circulatory failure, such as pallor, syanosis, coolness of the extremities, sweating and feeling faint. The level of arterial pressure at which coronary flow becomes seriously jeopardized varies in different individuals; thus, there is often a higher mortality in hypertensive persons, as compared with normotensive persons, whose systolic blood pressure falls below 100 mms. of mercury.[19] For example, signs of peripheral circulatory failure were present in a hypertensive patient with a drop in blood pressure from 180/118 to 98/72, whereas a normotensive patient did not exhibit this phenomena until the systolic blood pressure was 88 mms. of mercury. Therefore, the hypotensive stage is correlated with not only a fall in blood pressure but also with the degree and rapidity of fall of blood pressure.

Probably one cause of the blood pressure drop following myocardial infarction is a decrease in contractility of the myocardium followed by a diminution of cardiac output. The infarcted myocardium often balloons out; this can be seen experimentally in the dog's heart and occasionally in the human heart when fluoroscoping such patients, as described by Master[20], and as I have myself seen in one patient. However, I see no advantage in elaborating on the causes of hypotension, for the causes are unknown. Since this is a practical presentation, I am more concerned with therapy. The treatment of blood pressure which has dropped to or below 90 mms. of mercury systolic may be divided into:

(1) use of Vasoconstrictor drugs, e. g., neosynephrine
(2) use of transfusion:
    (a) intravenous
    (b) intra-arterial.

We have been doing considerable work[21] on certain hypotensive drugs and during the depressor stage we have used 1% neosynephrine hydrochloride solution to counteract the blood pressure drop. This agent is a synthetic sympathomimetic drug which resembles epinephrine and ephedrine in causing peripheral vasoconstriction, but does not cause this by increasing the heart rate or myocardial irritability. Neosynephrine further differs from epinephrine and ephedrine in that it does not produce nervousness or apprehension or tremors, perspiration or palpitation, nor does it suffer a loss of effectiveness after repeated administration. In a normal individual, 0.30 mgs. of neosynephrine given intravenously will elevate the blood pressure from 110/80 to about 165/98 in one and one-half minutes; at the same time, the pulse drops from about 80 to 50. The degree of blood pressure rise following neosynephrine intravenously is approximately proportional to the dose. In one of our experiments, with hypotensive agents, the blood pressure was artificially lowered from 164/110 to 110/74. Following the injection of 0.75 mgs. of neosynephrine intravenously, the blood pressure rose to 160/110 within thirty seconds. Within ten minutes, the blood pressure had again fallen to 134/90; a second dose of 0.50 mgs. of 0.50 mgs. of neosynephrine intravenously again elevated the blood pressure to 170/110. In another experiment in man the controlled blood pressure of 154/90 fell, after the administration of the hypotensive drug being studied, to 88/54. Because the latter blood pressure was lower than desired, we injected intravenously 0.75 mgs. of neosynephrine, and again after one minute the blood pressure rose to 190/120. Within about ten minutes, after the action of the drug had subsided, the blood pressure was 86/52. Another dose of 0.3 mgs. of neosynephrine intravenously produced a rise up to 124/90. Other examples, in addition to these, may be cited to demonstrate the sharp and rapid pressor effect produced by neospnephrine. It is suggested that an initial dose of 0.3 mgs. of neosynephrine be given intravenously and the blood pressure followed every five minutes. If the blood pressure elevation which results is insufficient, that is, not approximately equal to the blood pressure reading for the particular patient prior to the attack of coronary inclusions, then another dose of neosynephrine may be administered either in the same dosage, or slightly higher, e.g., 0.50 to 0.70 mgs. The drug

should, of course, be discontinued when the blood pressure has returned to and is maintained at normal or average levels.

The primary purpose of vasoconstrictor drugs is to tide the patient through the stage of acute flood pressure drop. During the hypotensive stage, the following physiological events occur:

(a) decreased coronary flow
(b) augmentation of myocardial ischemia
(c) increased myocardial irritability (due to the ischemia) which may produce serious or fatal ventricular arrhythmias.

In brief, the patient may terminate from the acute bloow pressure drop alone, even though pathologically or microscopically the myocardium is healing. The physiological vasoconstriction, as demonstrated by cold hands and cold feet, which normally accompanies a drop in blood pressure below normal may insure renal or cerebral blood flow, and within limits, even enhances coronary flow, but the increase in coronary flow is apparently insufficient for the needs of the myocardium. Hence the use of vasoconstrictor drugs, as a temporary measure only, appears to be a valid and useful therapeutic procedure, primarily to prevent the establishment of irreversible "cardiogenic" shock. Other vasoconstricting drugs, such as paredrine, may also be used, but I have discussed the employment of neosynephrine simply because it is more readily available, and my colleagues and I have been studying its action within the past year.

Transfusions have been employed in order to elevate the blood pressure by reason of increased blood volume and to enhance cardiac output. The usual fluids used have been distilled water or saline, serum albumen and whole blood. Actually, it takes longer to elevate the blood pressure, during a hypotensive episode, by the use of intravenous fluids than by the use of vasoconstrictor drugs, although some success has been reported.[19] However, the introduction by Page[20] of intra-arterial whole blood transfusion holds significant promise. He has employed a simple Kelly flask, to which is attached a pressure bulb and aneroid thermometer, which regulates the pressure within the Kelly flask. Properly crossmatched blood is run into the radial or brachial arteries. He has found experimentally that blood volume deficits are easily corrected and that amount of blood enters the circulation which is required to fill it. His suggestions as to its use are: if the patient's blood pressure is 30 mms. of mercury or less, then the blood pressure in the Kelly flask should be 20 mms. of mercury higher. The blood is allowed to flow into the artery using an infusion pressure which is increased in jumps of 20 mms. until the systemic blood pressure reaches about 110 mms. of mercury. Page has found that the presence of low systemic blood pressures (about 50 mms. of mercury), blood will flow in retrograde fashion up the aorta, filling the kidneys first and then the brain and heart. He has furthermore found that intra-arterial transfusions is one of the few methods which will resuscitate the dog when the heart and respiration have failed. For example, in thirty-nine dogs, 84% could be resuscitated when clinically "dead;" 51% live for ten hours, and 33% lived indefinitely. In man, when intra-arterial transfusions were attempted in the face of approaching cardiac and respiratory arrest Oubain in doses 0.25 - 0.50 mgs. should probably also be given since this situation represents cardiac failure. It would seem also advisable to give intravenous procaine or high doses of quinidine and papaverine intravenously or intramuscularly, for when systemic blood pressures are 50 mgs. of mercury or less, fatal ventricular arrhythmias are often imminent or present.

The main disadvantages of this method seem to be its unavailability when needed and the time consumed in cutting down on a major artery. Its chief hope seems to rest on the possibility, experimentally demonstrated, that life might be resotred in the face of impending or actual death.

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PRENATAL INFLUENCES

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HOW many and which of many congenital anomalies encountered among infants and children are due to inheritance—"inborn characteristics"—and how many are due to correctible or nonrecurring environmental faults during pregnancy? In the present state of our knowledge no one can answer this question correctly, and no one can state a correct ratio as to the relative importance of genetic and environmental factors, but I think all of us are aware of a reasonable and increasing emphasis on the importance of environmental disturbances during pregnancy in the production of many common defects.

Justification for this emphasis would be ample if only occasionally the physician could reassure parents of a deformed or defective baby, that a definite *correctible* or *nonrecurring* cause was responsible, and that further childbearing could be encouraged. For this reason it is most tempting to draw comparisons between a number of common congenital anomalies encountered in pediatric practice and similar ones which may be produced in experimental animals. Such comparisons are, with few exceptions, fair. I should like to venture some distance into an area of conjecture based on a rather large clinical experience, some knowledge of pertinent literature, and a few specific examples encountered in our own clinics which justify a basis for our belief that many associations observed in experimental laboratories have their true counterparts among patients encountered in our hospital wards and clinics. I will stretch analogies a bit now and then to make a point; my purpose is to impress on everyone the necessity of searching for correctible factors whenever a congenital anomaly of any sort is encountered, particularly soon after delivery when the likelihood of remembering apparently trivial but important details of the pregnancy is greatest; contrariwise, it is equally important that we make a most careful study of any infant born to a mother known to have been exposed to any one of a number of risks now known to be likely causes for defects.

These imitations produced by environmental factors are called "phenocopies." It is usually impossible with phenocopies encountered clinically to distinguish the individual influences of hereditary or environmental agents, alone or in combination. Generally speaking, it is recognized that a faulty intrauterine environment may be productive of either general or rather specific abnormalities in the offspring. Also, it is agreed that the *timing* of a particular insult to the developing embryo or fetus may be at least as important in the production of anomalies as the nature of the insult concerned. My purpose here is to review and discuss a few distinctive abnormalities in new-born infants which have been accepted with varying degrees of enthusiasm as being related to specific faulty environmental factors at play during intrauterine life, grouping these under seven arbitrary headings —nutritional, chemical, endocrinologic, actinic, infectional, immunologic, and mechanical.

1. *Nutritional Factors*

When one recognizes the rather large increased requirements for specific nutrients during preg-

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nancy—particularly for protein, calcium, and vitamins A, C, and the B complex, then he recognizes how frequent "borderline" deficiencies in these several categories are apt to be, particularly in the first trimester of pregnancy which we consider so important in its relation to certain abnormalities. It probably should be emphasized that gross deficits in the maternal diet are often lethal for the embryo and that the most important ones to recognize in the present connection are more apt to be of questionable degree. A number of studies have attested the importance—both for the welfare of mother and infant—of careful attention to maternal diets. Real differences have been discerned in the incidence of prenatal complications in the mother as well as in the general condition of infants related to quality of maternal diets during pregnancy. Studies of this sort have been extended further to indicate rather remarkable differences in the duration of the first stage of labor related to similar considerations. While there seems to be general agreement that there is no such thing as a single "anti-infection vitamin," deficiency in any or several dietary requirements may decrease resistance to infection and thus also have important conditioning effects.

Perhaps one of the most familiar clinical entities apt to result from specific maternal nutritional deficit is that of cretinism related to chronic maternal iodine deficiency; though such an association is by no means consistent, it should certainly always be sought for reasons of prophylaxis. Experimentally, maternal deficiency in vitamin A may result in a wide variety of disturbances in reproductive function, but frequently also in the appearance in the offspring of ocular defects such as cataract, coloboma, anophthalmia, microphthalmia, etc. Abnormalities elsewhere, about the ears, lips, palate and kidneys have also been observed. In most such clinical examples which we have encountered, it has, of course, been impossible to *prove* a definite and clear-cut relationship to vitamin A deficiency in the maternal diet; in some, however, suggestive histories pointing in this direction have been obtained—perhaps emphasizing again the importance of "borderline" deficiencies.

Experimentally, a number of skeletal malformations apparently result from a lack of riboflavin in the maternal diet; in the main these consist of varying degrees of shortening in the mandible and long bones, several types of fusion defects, cleft palates, and the like. According to Warkany, who has done outstanding experimental work on the induction of congenital defects, these and probably other malformations result from riboflavin deficiency, perhaps because this vitamin is a constituent of a number of enzymes essential for tissue respiration; presumably errors in differentiation of this sort may occur with deficiencies of riboflavin not severe enough to interfere with normal foetal growth in mass.

Even these few dramatic examples relating certain common congenital anomalies to nutritional deficits should serve to whet our interest in seeking further documentation from our experiences with human examples as well as to encourage us to accomplish everything possible for their prevention by proper attention to maternal diets.

2. *Chemical Factors*

To my knowledge, no specific recognizable syndrome in human infants has been attributed to a particular chemical disturbance during pregnancy. As a general rule, it appears that effects of chemical poisonings during pregnancy are either lethal or nonexistent. There are a number of interesting abnormalities which have been observed in animals, resulting from specific chemical poisonings in utero, but their prototypes have not been recognized in clinical experience up to the present time.

3. *Endocrinologic Factors*

A very common effect of estrogenic stimulation to the newborn is mastitis neonatorum; though certainly not a congenital abnormality, its importance rests in differentiation from purulent mastitis due to infection, and in skillful neglect lest infection be introduced. Perhaps more common, but much less dramatic is the so-called "precocious menstruation" of the newborn influenced by maternal hormones, though this manifestation is much less disturbing to all concerned.

Perhaps the most striking abnormality resultant from excessive androgenic stimulation —usually due to adrenal cortical hyperplasia or tumor—is the clinical picture of pseudohermaphroditism, which is often rather paradoxically

associated with clinical and chemical evidences of deficiency in the salt and water hormone of the adrenal cortex during the first few weeks of life. These babies, in imminent danger of dying from metabolic disturbances resulting from this deficiency, can be saved by appropriate replacement therapy, as attested by a number of recent reports. Another common problem associated with endocrine disturbances is that exhibited by the infant of a diabetic mother, in which remarkable splanchnomegaly, hematologic features similar to those of erythroblastosis fetalis, and dangerous cardiorespiratory crises are prominent. It is to be noted that the clinical manifestations in these babies are quite similar to those observed in congenital beriberi.

Mongolism, perhaps related basically to hereditary influences, seems undoubtedly to be influenced in its expression by a number of conditioning factors, most important of which appear to be maternal age and placental abnormalities, though other factors perhaps mediated through the endocrine system may also be at fault.

4. *Actinic Factors*

Though uncommon, the least excusable and most unfortunate of these results from inadvertant radiation of the mother—usually by x-ray or radium—early in pregnancy. The resultant clinical features in the offspring are pitiful. These are classed under the descriptive term of "roentgenogenic microcephaly." Prominent here are severe degrees of mental retardation, microcephaly, micrognathia, ocular defects, and other abnormalities depending perhaps on the particular timing of the insult in relation to maturation of developing structures in the embryo. Little or nothing is known of the amount of radiation necessary to produce these devastating effects at particular stages during the organogenetic period; this being so, it seems fair to argue that no woman should be irradiated for any cause during the childbearing period until or unless pregnancy has been specifically excluded by appropriate tests and all subsequent precautions and dangers taken into consideration.

5. *Infectional Factors*

Now most familiar to all bridge table conversationalists, and perhaps responsible for as much as five per cent of all congenital defects is the rubella syndrome. A recent paper by Warkany has served to emphasize the variability in expression of this syndrome as contrasted with a more consistent picture originally emphasized by Gregg; in the main, however, the most important and recognizable manifestations consist in deafmutism, cataracts, anomalies of the central nervous system, and congenital cardiac defects. Less conclusive but suggestive statistical evidence incriminates maternal infectious mononucleosis in a similar way. Our own experience also justifies some suspicion of mumps in relation to certain anomalies.

Congenital toxoplasmosis, which perhaps most commonly results from asymptomatic or unrecognized infection of the mother produces clear-cut features in the offspring. It is prominent among causes of congenital hydrocephalus and is recognized in older infants and children by the association of neurologic disturbances and mental retardation associated with intracranial calcifications, patchy choroiditis, and the presence of positive serologic tests useful for retrospectively identifying the causative agent. The studies of Paige, Wolfe, Sabin, Adams, and others have served to elucidate this unfortunate sequence of events beyond any reasonable doubt.

While there is reasonable question as to the role of syphilis in the production of congenital anomalies, all of us are familiar with its serious effects in relation to incidence of stillbirths, prematurity, and serious illness in infants. In just those environments responsible for a high incidence of congenital syphilis one is also apt to encounter a number of other factors which may be related more clearly to the appearance of defects in the newborn infant.

Though much remains to be learned of the role of maternal infectious disease in the production of congenital abnormalities, the stimulus that came with Gregg's observation, calling out attention to the importance of maternal rubella, was a very important one and will undoubtedly lead to far-reaching investigation within the forseeable future.

6. *Immunologic Factors*

The familiar clinical syndrome related to immunologic disturbances during pregnancy includes varying manifestations of hemolytic disease (erythroblastosis fetalis) related to mechanisms for isoimmunization concerned with the Rh factor. This syndrome, however, probably represents only an example, or pattern, of oth-

ers which might be similarly determined. The illustration is chosen only to point up the fact that we know little or nothing of immune mechanisms during pregnancy in their relation to disease other than this very serious one of which we have learned so much in recent years.

7. *Mechanical Factors*

There seems to be no doubt that faulty implantation of the placenta may interfere to a great extent with proper nutrition of the embryo and thus be responsible for producing a number of anomalies. It is reasonable to believe that some other mechanical causes may at times also be important, discernible, and even correctible. Uterine myomata conceivably might cause a faulty position of the developing embryo or fetus and be responsible for postural defects recognizable in the newborn; oligohydramnios might similarly be incriminated. Deformities which are apparently resultant from pressure phenomena are not at all unusual in the products of ectopic pregnancy, and some are fairly common when there are multiple births. Chapple has pointed out that the simple procedure of determining the "position of comfort" in the newborn can do much to elucidate mechanical factors responsible for a number of deformities such as asymmetry of the mandible, genu recurvatum, some types of club foot and various curvatures or other defects about the extremities. There can be little doubt but that many of these deformities apparently due to faulty intrauterine posture are in reality related to hereditary factors or to disturbed nutrition incident to faulty implantation of the ovum; it would be difficult, however, to distinguish which of these mechanisms basically were at fault, and these few illustrations, therefore, serve to emphasize the point that their appearance should lead immediately to appropriate studies for determining the presence of causes which might be correctible or not expected to recur.

In conclusion, I feel obligated to apologize again for stretching a few points. Along with the other remarkable advances in medical science of recent years, however, there has been accumulated adequate information to indicate that older opinions ascribing most congenital malformations to completely unknown factors are wrong. We still have a long way to go before the role of environmental influences during pregnancy are entirely clarified; the door to a tremendous field of study has barely been opened. Admittedly, etiology of most congenital malformations is undoubtedly very complex and is only rarely based on a single factor; nevertheless, we physicians can do much to aid our co-workers in experimental teratology. At least it is clear that prevention of congenital malformations may occasionally be possible, and that the future in this area of preventive medicine holds great promise, provided that clinicians and experimentalists most concerned will take advantage of one another's observations.

Finally, as a very practical consideration, these few patterns may serve an occasional useful purpose when it comes to answering the very important questions which the parents of any defective baby want answered. It seems needless to point out that there is great comfort for all concerned when it is possible to relate a given abnormality definitely to a recognizable cause unrelated to purely genetic considerations, particularly when such a cause may be correctible or is not expected to recur.

THE DIAGNOSIS AND TREATMENT OF PULMONARY MYCOSES

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THE most common fungus infection of the lungs in California is coccidioidomycosis. The etiologic agent, *Coccidioides immitis,* is present in the soil and is usually breathed into the lungs in dust, although it is occasionally inoculated into a cut or abrasion of the skin. In at least 60 per cent of instances, the infection is subclinically but immunologically effective leaving the patient immune to future infection and with a positive skin test to coccidioidin, which apparently persists for life. In about 40 per cent the patient has symptoms of a respiratory infection. Rales are present in about 20 per cent and some patchy areas of consolidation. Enlarged hilar lymph nodes are present in about 75 per cent of patients with symptoms. The white blood count is elevated to a moderate degree, the sedimentation rate is increased and an excess of eosinophils is frequently present. The work of Dr. C. E. Smith shows that a positive skin test to coccidioidin appears in nearly all patients by the end of the second week of the disease. Precipitins appear in the blood after 10 to 14 days but gradually disappear after 30 to 60 days. Complement fixing antibodies do not occur at all in the milder cases but appear in low titers, in the more severe cases, and disappear with recovery. About 20 per cent of patients with symptoms develop, in 3 days to 3 weeks after the fever disappears, erythema nodosum lesions in the skin and subcutaneous tissues. Experienced clinicians believe the patients having these lesions rarely develop the progressive form of the disease. Certainly such patients are extremely sensitive to coccidioidin and the preliminary skin test should be performed with a 1:10,000 dilution followed if necessary by 1:1,000 and 1:100.

In about 4 per cent of infections in white patientsc and 10 to 20 per cent of Negroes, Mexicans and Filipinos the disease passes over into the progressive form of coccidioidomycosis, formerly known as coccidioidal granuloma. The mortality in this type of infection is about 50 per cent.

Complement fixing antibodies appear early in the progressive form of the disease and increase progressively in titer until a few days before the death of the patient. In the fortunate patients who recover the rising titer becomes stationary and then decreases to zero as the patient improves. The skin test to coccidioidin decreases as the patient grows worse and is often negative in the progressing case.

Meningitis, simulating tuberculous or viral meningitis, may appear in patients who have had no symptoms of previous infection. Buss, Gifford and Gibson have reported 53 cases and emphasized the importance of the complement fixation test for coccidioidomycosis in the differential diagnosis.

Patients with the primary infection should be kept in bed until the temperature and sedimentation rate are normal, and under observation until the precipitin test and complement fixation test are negative. Patients with the progressive form of the disease should be given the general supportive type of treatment usually employed for patients with progressive tuberculosis. There is no specific treatment of coccidioidomycosis, although new work here in California with an antibiotic derived from *Serratia masserans,* known as prodigiosin, looks promising.

ACTINOMYCOSIS

The second most common fungus disease in California is actinomycosis. The etiologic agent, *Actinomyces bovis,* occurs naturally in the gums and about the teeth of man. The organism may invade the mucosae of the nasopharynx and produce (1) cervico-facial actinomycosis; it may be aspirated into the lungs to initiate (2) pulmonary actinomycosis; or may be swallowed where it can penetrate the intestinal mucosae and give rise to (3) abdominal actinomycosis.

There is nothing diagnostic about the physical signs or x-ray shadows of early pulmonary infection. Later the infection may invade the chest wall and produce multiple draining sinuses. The diagnosis is established by finding sulphur granules in the pus from the draining sinuses. These granules are composed of masses of gram-positive branching filaments. *A. bovis* is anaerobic and must be cultured on a rich media under anaerobic conditions.

Early infection may clear completely after intensive treatment for some weeks with sulfadiazine or penicillin. More advanced cases require surgical draining as well as antibiotic therapy. Large doses of iodides should be used as supplementary treatment to produce resolution of the granulomatous tissues. In some localized pulmonary infections lobectomy or pneumonectomy is indicated.

NOCARDIOSIS

Various species of *Nocardia*, particularly *Nocardia asteroides*, are found in the soil and produce disease in man which resembles actinomycosis. The *Nocardia* are areobic, will grow on either blood agar or Sabouraud's media. *N. asteroides* is acid-fast and may be confused with tubercle bacilli if the presence of numerous side branches on the organism is not noted.

The Nocardia are resistant to penicillin but respond slowly to sulfadiazine or a combination of surgery, iodides and sulfadiazine.

NORTH AMERICAN BLASTOMYCOSIS

Blastomycosis occurs most frequently in the Mississippi River Valley and in the Southeastern states but is indigenous in California. The etiologic agent *Blastomyces dermatitidis* apparently comes from the soil and is scratched into the skin or breathed into the lungs. Primary pulmonary blastomycosis begins most often as a unilateral infection, in contrast to coccidioidomycosis add histoplasmosis, and is frequently mistaken for a pulmonary neoplasm. The organism grown readily in the yeast-like phase after 7 to 14 days incubation on blood agar media at 37° C. On Sabouraud's media at room temperature a white mold-like growth appears which resembles the mold-like stage of *Coccidioides immitis* but the mold-like growth of *B. dermatitidis* reverts readily to the tissue stage by subculture on blood agar at 37° C.

Patients ill with blastomycosis should be hospitalized. The specific treatment depends upon the immunologic type of infection. I. Patients with positive complement fixing antibodies and negative skin tests can be treated immediately with iodides. II. Patients with positive skin tests and negative complement fixing antibodies and those with III. positive skin tests and positive complement fixing antibodies should be desensitized with *Blastomyces* vaccine before being treated with iodides. IV. Patients with both negative skin test and negative complement fixing antibodies should be actively immunized by a series of injections of *Blastomyces* vaccine until either a positive skin test or positive complement fixing antibodies can be detected before iodides are administered.

HISTOPLASMOSIS

Histoplasmosis resembles coccidioidomycosis by having a benign primary stage, which is usually asymptomatic, and a relatively rare, progressive, highly fatal form. After healing, even in asymptomatic cases, numerous areas of calcification are found as a residue in the lungs.

The organism is present in the soil and is breathed into the lungs with dust. However, the invasion, particularly, in children, is frequently through the naso-oro-pharynx or through the intestinal tract and in rare instances through the skin.

Following the primary infection complement fixing antibodies appear from a few weeks in the serum and then disappear. If the infection becomes disseminated the complement fixing titer increases progressively until a few days before death. Asymptomatic and mild symptomatic cases develop a positive skin test to histoplasmin which apparently persists for life. In contrast, the progressive cases may never have a positive skin test or if present, it may disappear as the disease becomes more severe.

There is a common antigen in *C. immitis, H. capsulatum* and *B. dermatitidis,* and cross reactions to skin tests and with complement fixing antibodies may occur. These cross reactions are more frequent between *H. capsulatum* and *B. dermatitidis* than between *C. immitis* and the other two fungi. The patient should be tested simultaneously with coccidioidin, histoplasmin and blastomycin, using first a 1:1,000 dilution of each. If all tests are negative they should be

repeated with 1:100 dilution. The specific infection will give the greater reaction. In doubtful cases the complement fixation test should be preferred with all three antigens.

Some cases of the disseminated disease recover spontaneously after a long illness. A few local lesions of the mouth have been cured with radium but there is no specific treatment at the present time.

CRYPTOCOCCOSIS

The etiologic agent *Cryptococcus neoformans,* formerly known as *Torula histolytica,* is carried by man and is found in all parts of this country.

The organism may cause a granulomatous skin infection, a subcutaneous pseudo-myxomatous tumor, or a primary pulmonary infection. *C. neoformans* has a great predilection for the brain and meninges where it stimulates many types of disease including encaphalitis and neoplasm. Most frequently it simulates tuberculous meningitis.

C. neoformans reproduces by budding both in cultures and in the tissues and is characterized by the presence of a wide gelatinous capsule. This capsule can be seen most easily if the sediment from the spinal fluid, pus, sputum or organism from a culture are added to a drop of india ink and examined directly under the microscope.

Immune bodies and skin sensitivity are absent in the acute progressive cases but agglutinins and skin sensitivity may be present in the chronic cases, particularly those with bone lesions.

Penicillin is not effective. Some patients recover after prolonged treatment with sulfadiazine, iodides and autogenous vaccines.

SPOROTRICHOSIS

Sporotrichum Schenckii grows naturally on plants and is found in all parts of the world including California. It usually produces lesions of the skin and glands but occasionally infects the lungs or induces a generalized infection invading internal organs and bones. The mold type of growth is obtained on Sabouraud's medium and the tissue stage on cysteine blood agar. This is one fungus disease where the organism is rarely seen in biopsy section, so cultures are essential to establish the diagnosis.

Potassium iodide is a specific for sporotrichosis. although large doses may be required and the treatment may have to continue for several months to prevent relapses.

MONILIASIS

Candida albicans (Monilia albicans) is an ubiquitous human saprophyte. It can be grown from the skin, saliva and stools of healthy individuals. It also occurs as a secondary invader in tuberculosis, pulmonary abscess, pulmonary neoplasm, bronchiectasis and in other fungus diseases such as coccidioidomycosis, blastomycosis, histoplasmosis and cryptococcosis.

C. albicans can produce a primary infection in the skin, nails, mouth, tongue, vagina, lungs, endocardium and meninges.

Acute pneumonic noniliasis responds best to intravenous gentian violet given in doses of 5 mgs. per kilo of body weight every other day for 4 to 6 doses. Patients with chronic bronchopulmonary moniliasis often have positive skin test to an autogenous vaccine. Such patients should be desensitized and then treated with potassium iodide.

GEOTRICHOSIS, ASPERGILLOSIS, PENICILLIOS AND MUCORMYCOSIS

These fungi, like Monillia, are ubiquitous and occur most often as saprophytes or secondary invaders. However, occasionally they produce abscesses in the lungs and in rare instances generalized disease.

Vaccines should be made from the cultures and skin tests performed. If the skin tests are positive, the patients should be desensitized before administering iodides; but if the skin tests are negative, iodides may be given at once.

HYPOMETABOLISM, HYPOTHYROIDISM, AND THE USE OF THE THYROID HORMONE

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THE clinical application of thyroid hormone therapy is so much a part of the custom and art of medical practice that attempts to rationalize its use are difficult as well as interesting. The difficulty arises largely from the fact that there is no readily available method of directly measuring thyroid function. Therefore clinically, since the basal metabolism determination is the most satisfactory indirect measure of thyroid function, the tendency is to consider basal metabolism as synonomous with thyroid function. This is frequently misleading inasmuch as thyroid function is just one of a member of processes, pathologic and otherwise, which affect basal metabolism.

Some of the more important of these other processes which are usually entirely unrelated to thyroid function are: malnutrition; endocrine disorders not primarily thyroid such as Addison's disease and some cases of diabetes mellitus; nephrosis, pernicious and severe iron deficiency anemias; and certain diseases of the central nervous system including certain psychoses, intracranial lesions, and severe neuroses.

It is superfluous to point out that raising the metabolic rate to normal by the use of thyroid extract will have no specific curative action in any of these conditions.

Finally in this connection it should be emphasized that the basal metabolic rate of normal individuals, i. e. individuals with normal thyroid activity, varies widely. Individuals with values of minus 20 to minus 25 are frequently encountered and values running to minus 35 or 40 are not extremely rare. In other words, basal metabolism is not regulated by the body to close limits like the internal bodily temperature, but varies from individual to individual as does weight and height. What is to be accomplished in such individuals with low metabolic rates by the administration of the thyroid hormone? It can only be concluded that raising the metabolism to a so-called normal level in such cases is done so at the expense of raising the thyroid hormone level of that individual to a supernormal level, and producing relative hyperthyroidism. This situation is somewhat comparable to the occasional patient with the signs and symptoms of hyperthyroidism but with a basal metabolic rate approaching zero. Often after surgical or medical correction of the hyperthyroid state he ends up with a basal metabolic rate of minus 25 or 30 representing for this individual a normal level.

Most will agree that the individual with a low metabolism and normal thyroid activity who feels well is not a candidate for medication with thyroid extract. But what about the individual in the same situation who does not feel well? A common procedure is to administer thyroid. If the patient is benefited, continue it. If the patient is not benefited or is made worse discontinue it. Kirk and Kvorning[1] reported a large series of cases treated in that way in 1936 and found that 20% of such patients showed objective improvement, and 35% subjective imbrovement. Assuming that their pretreatment classification was correct, the benefits occurring in these cases must be explained on the basis of the potentialities of thyroid extract as a stimulant and not upon its action as specific replacement therapy.

The type of benefit thus obtained, therefore, compares to that achieved from other stimulants such as benzedrine, dexedrine, ephedrine, and coffee. "Improvement" in such a situation is notoriously hard to assess, it being affected by the morale of the patient, his state of rapport with the physicians, the suggestive effect of knowingly receiving thyroid extract or by the production of a drugged situation with euphoria or artificial mood elevation which the patient prefers to his natural state. Individuals are frequently encountered who "have to have their cup of coffee" before they can get started in the morning, who have six or a dozen more during the day, who get a headache if they don't have the coffee and who spend the day in a caffeine haze which they prefer to their normal situation, and which they would describe as "feeling better." Much of the subjective improvement from the use of thyroid extract in

individuals with normal thyroid function may be of the same pattern and may parallel the exhilaration so frequently encountered in intrinsic hyperthyroidism, particularly in males.

The converse of the difficulty of evaluating the subjective claims of "improvement" in such cases is found in the evaluation of statements such as "Doctor, I have not felt well at all since I stopped thyroid. I have no pep and am cold all the time." The physician is then in the dilemma of trying to decide whether the patient really needs the drug, whether she is merely experiencing withdrawal symptoms of a non-specific character or whether the Farquharsen phenomenon is being exhibited. In 1941 Farquharsen and Squires[2] made an interesting observation in the treatment of non-myxedamatous, low metabolic rate cases with thyroid hormone in that after the cessation of such therapy the metabolism for a time drops to a point considerably below its original pretreatment level.

It is now known experimentally that the administration of thyroid not only directly suppresses thyroid function but also indirectly depresses it by some action upon the anterior lobe of the pituitary. This mechanism provides not only an apparent explanation for the Farquharson phenomenon but also for the striking differences in the effect of thyroid extract upon myxedematous individuals and upon normothyroid individuals with a low metabolic rate. The former group respond dramatically to quite small doses of thyroid and the maintenance ration varies surprisingly little from patient to patient if a comparable preparation is used. In non-hypothyroid individuals, on the contrary, the response is indefinite, variable, and unpredictably and relatively large doses of the hormone may be required to produce minor shifts in metabolic level. In the ordinary case of myxedema one-half grain of USP thyroid extract will raise the metabolic rate to minus 20 and correct the majority of the signs and symptoms of this disease. One grain will raise the level to minus 10 and one and one-half grain to minus 5. Contrast this with the dosages of 3 to 5 grains or more frequently required to raise the metabolism of the normothyroid individual from minus 20 to 0.

The reason for this situation apparently lies in the tremendous margin of reserve inherent in the thyroid gland and in its capacity to adjust itself to the needs of the body. While thyroid insufficiency may result from destruction of the gland by surgery, infection, neoplasm, or pituitary disease, the usual cause is a primary atrophy of unknown etiology. This pathologic state must progress and destroy approximately 95% or more of the gland before symptoms appear, and having accomplished this degree of destruction, it ordinarily progresses, if given time, to more or less complete obliteration of the gland. It is certainly not logical to assume much likelihood of remission after this degree of destruction has been achieved. The destruction in these cases is a very obvious process and quite different from the equivocal changes in the islet tissue ordinarily found in diabetes mellitus. This situation contrasts with the individual with a normal thyroid gland and hypometabolism. Here we give thyroid in the presence of a gland which is physiologically capable of producing twenty or more times the normal requirements of the body. The ultimate effect of this situation is determined by the degree of suppression of endogenous thyroid activity which results, and perhaps as Means[3] believes, a diminished susceptability of the body as a whole to the action of thyroid hormone.

The diagnosis of myxedema will not be discussed except to emphasize that there are marked natural variations in skin quality, hair quality, and intolerance to heat or cold. The individual with a delicate skin easily dried and coarsened by the Arizona sun and wind and the individual who has always felt cold weather keenly are not likely candidates for a diagnosis of thyroid insufficiency. Unless such insufficiency has been present since infancy, the situation in the true hypothyroid is characterized by one of change in the basic life pattern. The individual who formerly could tolerate cold better than excessive heat now finds heat rather pleasant and in cold weather has a rather dreary struggle to keep comfortable.

Since myxedema or true hypothyroidism as distinguished from the normothyroid hypometabolic state is an extremely rare condition occurring at the rate of perhaps 5 in 10,000 hospital admissions, thyroid hormone for true replacement therapy is most rarely used. It must, therefore, be recognized that its present wide

use is as a drug for its pharmacodynamic actions upon the body tissues.

The situations in which it is used in this fashion are numerous, varied, and unrelated and include malnutrition, obesity, nephrosis, arthritis, certain psychoses and menstrual disorders. In many of these its utility is doubtful. There does, however, seem to be some degree of agreement that in certain menstrual disorders, habitual abortion and sterility, in certain disease sof the skin characterized by dryness or poor local circulation and in certain ophthalmological and otolaryngological problems it is a valuable drug.

CONCLUSION

This paper is presented as an inquiry into the use of the thyroid hormone. Some of the physiological aspects of the problem are discussed and the difficulties in judging its effectiveness described.

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DIAGNOSIS AND TREATMENT OF CANCER OF THE CERVIX

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IN recent years many excellent reports on cancer of the cervix have appeared in the medical literature; a few of these articles may be misleading to physicians who are not particularly interested in the cancer field or do not specialize in oncology.

The two commonest causes of death from cancer in women are cancer of the uterus and cancer of the breast. Cancer of the uterus assumes two main types: epithelioma of the cervix, and adenocarcinoma of the body of the uterus. Of these, epithelioma of the cervix occurs most frequently, is the most malignant and, therefore, the most difficult to control.

Epithelioma of the cervix usually arises from the stratified epithelium near the external os, frequently at the junction of the squamous and glandular epithelium. Sometimes the cancer is not visible on the cervix but arises inside the cervical canal by squamous cell metaplasia of the glandular epithelium; such cancers will not be found without curettement or biopsy of the endocervical canal. Occasionally epithelioma arises on the surface of the cervix far away from the external os. Cervical polyps are rarely malignant.

Clinically the tumor may be a protruding mass and papillary, or smooth, diffusely infiltrating with or without ulceration. Except in far advanced cases, microscopic examination is required to establish the diagnosis.

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Schiller's iodine test is of no value in the diagnosis of cancer, but it may indicate where the biopsy specimen should be obtained. Papanicolau's smears have caused a flood of articles to appear in the literature, lay and medical. This method has been used in so-called cancer detection centers, with mixed results. Valuable as this procedure may be, a patient should not be treated for cancer of the cervix unless the real diagnosis has been established by biopsy. A positive diagnosis of cancer on Papanicolau's smears can be made only by a pathologist who is especially versed in the cytology of tumors—it is not a test that can easily be interpreted by laboratory technicians. The cells obtained in such smears come mainly from the outer surface of the tumor, may not be characteristic, and may show only degenerated cells. Several special instruments have been devised to obtain the material.

Biopsy of the cervix usually requires no anesthesia and is a simple office procedure; and if facilities for frozen fresh tissue examination are available, a positive pathological diagnosis of carcinoma can be made in a few minutes after th ebiopsy specimen is obtained. Small samples of tissue taken at the proper places with a Gaylord specimen forceps are sufficient for pathological diagnosis. Excision of large pieces (2 or 3 cm.) of tissue from the cervix for biopsy is unnecessary, and the trauma delays healing.

Light cauterization for bleeding after taking

the biopsy may be used but is seldom required. Cauterization as a method of treatment of cancer of the cervix, or preceding radium treatment, is a useless procedure and may be harmful. Electro-coagulation is followed by necrosis of tissue, slough, and infection—and the results from radium after cauterization are inferior.

About 5% of the cancers of the cervix are adenocarcinomas, and 95% are squamous-cell epitheliomas usually of high malignancy. Dr. Broders of the Mayo Clinic instituted the system of grading of the malignancy of all epithelial tumors of the body, based on the degree of anaplasia; in 1922 he reported on squamous-cell epithelioma of the cervix and found no grade I, 8% of grade II, 57% of grade III, and 35% of grade IV. To change this classification to grades I, II, and III adds only confusion. Martzloff obtained practically the same percentage but used the terms spinal-cell ,transitional cell, and fat spindle-cell instead of numerals. Grade II epitheliomas of the cervix do not always show intercellular spines, or spinal-cells; the term "transitional" lacks definition; and grade IV carcinomas are not always spindle-cells but are more apt to consist of round cells. Epidermoid carcinoma of the cervix has also been classified as adult, plexiform and anaplastic; and of low, medium, and high malignancy. No advantage has been found in changing Broders' system of grading.

Clinical classification as to stage of advancement of the disease is very useful in planning the treatment. Roughly, stage 1 cancer is small and strictly limited to the cervix, the organ of origin; in stage 2 there is beginning involvement of broad ligaments or fornices; in stage 3, there is marked involvement of parametrium and limited mobility of the uterus; in stage 4 the disease is far advanced with involvement to the pelvic walls, invasion of bladder or rectum, or distant metastases.

Spread: Epithelioma of the cervix is highly malignant and the pelvis has an abundant supply of lymphatics and lymph nodes to afford early spread of the disease. Extension of the cancer may take place in any direction. The cuff of the upper vagina around the cervix is often invaded early. Extension in the cervical canal to the internal os is common, and in advanced cases even into the body of the uterus. Invasion of the broad ligaments occurs early; and when it reaches the walls of the pelvis, the uterus becomes fixed and the tubes, ovaries, and peritoneum may be involved. The ureters are resistant to cancerous invasion but are frequently compressed by surrounding growth.

In the more advanced stages the tumor may invade the bladder directly from the cervix; the growth may extend from the vagina to the rectum and produce a recto-vaginal fistula. There may be involvement of lower vagina and metastases to the inguinal nodes. The pelvic bones may be eroded by extension of the tumor. Distant visceral metastases can occur, especially in liver and lungs.

In spite of the cancer educationol campaign, less than 10% of cancer of the cervix are seen early, or in stage 1.

Since 1916, it has been generally conceded that the choice of treatment of carcinoma of the cervix is irradiation. Radium, which is the main treatment, when applied to cancer of the cervix nearly always causes disappearance of the lesion and results in healing. The application of radium has to be varied with the extent and location of the cancer; approximatetly 1/3 of the dose is given intra-uterine, with 1 mm. platinum filter, and 2/3 vaginally, with 1.5 to 2 mm. platinum filter. In most cases colpostats to the lateral fornices are required. The usual dose is 5,000 to 6,000 mg. hrs. given at one sitting in a two-day period; and sometimes 7,000 mg. hrs. are given if the lesion is large and the radium is widely distributed. Some patients have diarrhea or bladder irritation for a few days to a week after the radium treatment.

X-ray: Two to three weeks thereafter treatments are given to the pelvis to cover the nodes near the pelvic walls and other structures not reached or sufficiently irradiated by the radium. X-ray treatments are given daily, until the total dose is 2,000r/air to each field—200r/air to each of 2 areas or 300r to one area, sometimes 2500r; 2 or 3 fields are used, giving a total of 4,00 0to 6,000r. No. 2 Thoreaus filter in a 250 KV machine will give better depth dose and less skin damage than ½ or 1 mm. copper filter.

After the treatment is completed, it is very important that the patients come in for periodic examinations: every two weeks for two months, every two months for five years, and every three

months for another five years. Follow-up or periodic examinations every six months are next to worthless to such cancerous patients—cancer can grow enormously in three months.

X-ray treatments to the cervix through the vagina have been popularized in recent years. Technical difficulties prevent such treatments from being fully effective, but may be used for palliation in advanced cases or as an accessory method of treatment. The implantation of radium needles or radon seeds is sometimes used as supplementary treatment, but often it is not very successful.

Although the absolute five-year cure rate has been reported as varying from 20 to 87%, conservatively it is probably about 30% - 40%. In the last 12 years we have had 186 cancers of the cervix; although we have not had opportunity to check up on the statistics, the a bsolute five-year cure rate appears to be in line with that of other cancer clinics, about 30% - 40%.

The failures are mainly in the advanced cancers, clinical stage 4 and some in stage 3. It has been impossible to give sufficient external irradiation to completely sterilize metastases in lymph nodes near the pelvic wall.

There are few or no indications for surgery in cancer of the cervix. The advanced cases are classed as inoperable; the early cancers, stage 1, are the so-called operable cases; such local cancers are easily cleared by radium treatments, and should have full irradiation therapy. Some early lesions already have spread or formed metastases.

Cancer of the cervix is of high malignancy, and, therefore, as in other parts of the body, the disease makes complete surgical eradication impossible. Surgeons should, and do, hesitate in operating on grade III and IV malignancies —unless previously treated with irradiation to reduce the size and the activity of the growth.

CONCLUSIONS

1. The real diagnosis of cervical cancer is made by pathological examination of biopsy tissue.

2. Carefully performed irradiation is the best treatment for epithelioma of the cervix at the present time.

3. Early diagnosis and treatment of cancer is imperative. The cancer educational campaign has gone about as far as it can in the education of the public.



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Editorials

SPEAK NOW . . . Or else here after, forever, hold your peace.

In every human undertaking, there comes a time for action, a time for decision. You can describe it in the language of the marriage service, or—if you prefer—of the poker table, "Put up or shut up."

No matter how you phrase it, the alternative of such a time cannot be denied.

This year is a time of decision that requires positive action on the part of the medical profession. If this action is not forthcoming, doctors cannot reasonably complain of the consequences.

This is a year in which the American people elect Senators and Congressmen to represent them in Washington. Under our system of Government, it's up to every citizen to work for the success of candidates in whose views he believes. Only through *active* effort can we have *good* Government.

This responsibility is now squarely before all doctors. If they are to be well represented they must work, and they must start now. Doctors, their families, their friends, all they can influence must be registered. On election day—in primary balloting and in November—it's up to the doctors to help turn out the vote—the vote for their candidates.

There is only one way to preserve American freedom—medical freedom—under our democratic process. That way is the voting way . . . the electioneering way. It's the best way ever devised, but it poses responsibilities.

They are responsibilities no doctor can afford to sidestep. They are responsibilities that need meeting . . . now . . . today.

PHOENIX CLINICAL CLUB

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

Massachusetts General Hospital
Case Report No. 30172

A twenty-three-year-old man was admitted to the hospital because of rectal bleeding.

The patient was in excellent health until about twenty months before admission, when he had severe diarrhea lasting four or five days and consisting of ten or more stools a day. There was intermittent, crampy, generalized abdominal pain, especially on the right side. The diarrhea subsided except for two episodes, each lasting for one week and occurring three and ten months after the first attack. The crampy pain was present before, during and after the attacks. Ten months before admission he enlisted in the Army, where he underwent basic training for two months. He then had another attacks of crampy, low abdominal pain and diarrhea, for which he was hospitalized. With a bland diet the diarrhea subsided but the pain persisted. A gastrointestinal series and Graham test were negative. A barium enema showed a constricting lesion of the right colon. X-ray films of the chest, examination of the sputum and gastric washings for tubercle bacilli and tuberculin test were negative. Operation was advised, but he requested, and was granted, medical discharge. Following discharge his condition remained the same. One week before admission he had a small gush of bright-red blood following an otherwise normal bowel movement. He had had no chills, fever, nausea, vomiting, night sweats, loss of

appetite or change in weight. No other gastrointestinal or genitourinary symptoms were noted.

Physical examination showed a well-developed, well-nourished man in no distress. The heart and lungs were normal. An abdominal mass was palpated on the right side by one of two examiners. There was no tenderness or spasm.

The blood pressure was 110 systolic, 78 diastolic. The temperature, pulse and respirations were normal.

Examination of the blood showed a red-cell count of 5,760,000, with 86 per cent hemoglobin. The white-cell count was 12,500. The urine was normal. A blood Hinton test was negative. The stools were dark brown, with a 4 plus guaiac test. The nonprotein nitrogen was 27.5 mg. per 100 c.c., the protein 6.9 gm. per 100 c.c., and the chloride 102 milliequiv. per liter. A proctoscopic examination showed a normal rectum.

A plain film of the abdomen revealed gas in the ascending and transverse colon and a small amount of gas and feces in the descending colon, but no gas in the rectum. An intravenous pyelogram was negative. A barium enema showed ready filling of the descending and transverse colon up to the hepatic flexure, at which point the bowel was markedly narrowed for 10 cm. Proximal to this, the cecum did not fill easily. The wall was irregular, but without any change in the mucosal pattern except for shelf formation and small ulcerations. The chest films were negative. A Miller-Abbott tube was passed into the small intestine.

On the tenth hospital day an operation was performed.

DISCUSSION

Dr. Palmer Dysart

A study of constricting lesions of the colon did not succeed in making a diagnosis for me, except upon a statistical basis—and I failed not too long ago to make a correct diagnosis by basing my selection upon the laws of chance—for our cases so often are exceptions to the rule which is an excellent way to stimulate our awareness of variations, but it is awfully hard on my diagnostic record. So far, I have been 100% - wrong.

I will give a brief review of the literature relevant to this case, and then satisfy the requirement that a diagnosis be made by arbitrarily doing so.

Non-malignant strictures of the colon are rare, except in connection with diverticulitis. If there is a history of tuberculosis or dysenteric ulceration, the possibility of an obstruction due to cicatrization should be considered, though this is a very unusual occurrence. Hyperplastic tuberculous infiltration of the intestine, especially of the cecum, causes obstruction, but the tumor present is difficult to distinguish from carcinoma.

Organic stricture of the colon is most commonly due to carcinoma. Progressive loss of weight and strength, anorexia, and anemia are late symptoms. The obvious presence of blood in the feces is an important symptom, but frequently only chemical blood is found.

The colon may become much thickened with inflammation, or even come to lie in an abscess of its own production, in diverticulitis, pericolitis, cecitis, pericecitis, appendicitis, and hyperplastic tuberculosis of the colon, forming a thickened and tender mass immediately under the abdominal wall; the patient will be more or less acutely ill, with local pain and tenderness, constipation, often vomiting. In the more chronic case, the diagnosis of malignant disease of the colon will often be suggested.

The ascending colon can be felt as a sausage-shaped tumor in acute, subacute and chronic ileocecal and ileocolic intussusception, that may extend for a considerable distance along the course of the colon.

The majority of cases of regional or segmental fall into the recade between 20 and 30 years. The cecum and colon are rarely implicated; only exceptionally does the process pass the ileocecal barrier to involve the cecum and ascending colon, and when it does involve the colon it is nearly always as an extension from the ileum.

Ileitis is to be differentiated from sprue, rarely occurring ileocecal tuberculosis, diffuse Hodgkin's disease, and disseminated lymphosarcomatosis of the bowel. Carcinoma of the ileum or jejunum is also much less common than ileitis and is difficult to differentiate. In comparison with any of these diseases, ileitis occurs with much greater frequency, particularly in younger persons. Its course is prolonged and indolent, extending over years, and rarely so severe or rapidly down-hill as sarcoma, Hodgkin's disease or carcinoma.

Regional ulcerative colitis is similar to regional ileitis, although rare and involves the right half of the colon, and presents a picture similar to that of chronic ulcerative colitis except that it may be limited to one or more short areas

with normal appearing mucosa intervening. Its etiology, like ileitis is unknown.

In a small percentage of cases ulcerative colitis is limited to one part of the colon or to the rectum. In a recent series of 156 cases of chronic ulcerative colitis, collected by Ricketts, Kirschner, and Palmer, the colon was normal roentgenologically in 60 patients, the entire colon was involved in 32 cases, and the entire colon plus the terminal ileum in 15 cases. Segmental colitis was demonstrated in five patients roentgenologically.

Amebic colitis is similar to regional colitis, but with the aspects more of ulceration of the cecum primarily. Stool examination should be diagnostic.

Actinomycosis is a chronic disease caused by the fungus actinomyces bovis. It is characterized by the formation of abscesses, sinuses, granulation tissue, and brawny leathery infiltration of the surrounding tissues. The site of the lesion is predominantly primary in the ileocecal region or in the sigmoid colon. A positive diagnosis is made by finding of the sulfur granules of the ray fungus in the fistulous discharge or tissue secretion.

Tuberculous lesions of the large bowel appear mainly as two types—hyperplastic and ulcerative. The hyperplastic type occurs in young adults and is not commonly associated with pulmonary lesions. It is more common in the ileocecal region, the frequency of its occurrence decreasing in direct ratio to its distance from the cecum. Involvement of multiple areas of the colon is rare. The predominant pathologic characteristic is annular fibrous hyperplasia of the bowel without ulceration. The mucous membrane is greatly thickened and thrown into folds and polypoid masses. The other coats are likewise thickened by hyperplasia of the connective tissue and infiltration of round cells.

The ulcerative type is usually secondary to pulmonary tuberculosis and manifests itself as multiple irregular large ulcers which may be confined to a single portion of the large bowel, most often the ileocecal region, or it may invade all segments of the colon and occasionally, also the small bowel.

Of note in relation to the case under discussion, in the hyperplastic type, palpation of a tumor is possible in about half of the cases, and as a rule not much tenderness is ellicited.

The intestine is one of the most frequent sites in the body of primary neoplasms; about 15% of all cancers arise in the intestines. Whereas, there is some variation in the relative incidence of different types of tumors in various parts of the gastro-intestinal tract, in general it may be stated that slightly more than one-half occur in the stomach, about two-fifths in the colon and rectum, and less than one-tenth in the small intestine. Of all tumors in the gastro-intestinal tract, about four-fifths are malignant and one-fifth are benign. However, this ratio varies in different parts of the alimentary canal. Thus, although in the stomach about nine-tenths of the tumors are malignant, in the colon and rectum about three-fourths are malignant, and in the small intestine only slightly more than two-fifths are malignant. About 45% of all benign tumors and 37% of all malignant tumors in the gastro-intestinal tract are located in the large bowel, whereas only about one-fourth of all benign tumors and less than 5% of all malignant tumors are located in the small intestines. Of all intestinal (small and large bowel) neoplasms slightly more than four-fifths are located in the large bowel and of the malignant tumors almost nine-tenths are in the large bowel.

Sarcoma of the small intestine is about twice as frequent as sarcoma of the large bowel and occurs most commonly in males in the middle age group. Depending upon their histogenesis, the various forms of sarcomas of the small intestine include lymphosarcoma, leiomyosarcoma, fibrosarcoma, and neurofibrosarcoma. Lymphosarcomas comprise two-thirds of the cases and leiomyosarcomas about one-fourth. Lymphosarcoma is believed to originate in a simple lymphoid follicle or in lymphoid tissue located in the submucosa and in the early stage is localized in this region as a soft friable mass. It grows by spreading along the tissue spaces and soon infiltrates the muscularis and other tissue layers of the bowel wall. The tendency to invasion and destruction of surrounding structures is shown by the cylindrical or rigid tube-like character of the tumor growth. Ulceration is late and when it occurs it is characteristically excavated. Obstruction may occur as a result of stenosis, intraluminal protrusion, or external compression of the tumor, intussusception or kinking, or by ad-

herence of coils of intestine. Metastasis occurs to the regional lymph nodes in the mesentery and especially to the liver.

Tumors in the gastrointestinal tract are rarely non-epithelial in origin. The small percentage which are found arising primarily from mesodermal tissue are the so-called spindle cell tumors. Because of the difficulty in histological classification of many of these lesions, Palazzo and Shulz use the general terms benign and malignant spindle cell tumor. Spindle cell tumors of the gastrointestinal tract were found in 0.67% of 12,000 necropsy protocols and in 1.2% of 5315 surgical records at the Massachusetts General Hospital. Of the total of 140 spindle cell tumors, 9% were located in the esophagus, 65% in the stomach, 17% in the small intestine, and 9% in the large intestine. These tumors accounted for 2.3% of all tumors surgically removed from the esophagus in the past 16 years, 5% of those in the stomach, 7% of those in the small bowel, and 0.2% of those in the large bowel. The incidence of malignancy of these spindle cell tumors was: esophagus 33%, stomach 36%, small intestine 77% and large intestine 86%. Very few cures have resulted from surgery.

Roentgenologic recognition of spindle cell tumors as such has not proved to be satisfactory in the small or large intestine and only partially so in the esophagus and stomach. In none of the seven spindle cell tumors of the colon reported was the nature of the lesion recognized roentgenologically. The lesion was most frequently mistaken for carcinoma.

Due probably to the difference in origin and function of the proximal and distal halves of the colon—the proximal half up to the mid-portion of the transverse colon being derived from the mid-gut, and the distal half from the hind gut—the proximal half is more closely allied to the small bowel, and lesions involving it are more similar to lesions occurring in the small intestine.

Frequently, examination of the colon twenty-four hours after a barium enema, will show the proximal half of the bowel contracted, and the distal half dilated or vice versa. Occasionally, instead of the above, a contraction ring is found just distal to the hepatic flexure. The point in the colon where such changes in diameter and function occur is remarkably constant in location and is situated in the proximal third of the transverse colon.

In 1902 Cannon first described a contraction ring in the transverse colon of the cat which divides the large bowel into two partitions. Later, investigators found a similar contraction ring in man and observed different functions on both sides of it. This is the point where a change in innervation and blood supply to the colon occurs, changing from the vagus and superior splanchnic sympathetic nerves and superior mesenteric artery supplying the proximal portion to the pelvic portions of the parasympathetic and inferior splanchnic sympathetic nerves and inferior mesenteric artery supplying the distal portion.

As further evidence of the difference in origin of the right and left large bowel, it is interesting to note how frequently ulcerative colitis involves the bowel only distal to Cannon's point, while tuberculosis, classically is limited to the proximal partition of the colon.

Sarcoma, although rare in the colon, is limited nearly entirely to the proximal half, and lymphosarcoma is by far the most frequent type, assuming characteristics similar to that in the small intestine.

Carcinoma involving the right half, particularly the cecum, is likely to be fungating, the so-called colloid carcinoma, with considerable mucus production, whereas those in the distal half are more often of the scirrhous type. However, the scirrhous type does not tend to simulate the extensive tube-like invasion of sarcoma, but is more localized.

The symptoms of malignant lesions of the colon vary considerably according to the location of the lesion due largely to the fact that the contents of the right half of the colon are liquid, so obstructive phenomena are usually late.

In contrast to the nearly hopeless state of sarcoma of the stomach, with its survival rate of only 2% as brought out in the discussion two weeks ago, it is interesting to note that there are few places in the body where surgical extirpation of carcinoma offers such good results as in the large bowel. In a series of 4561 collected cases, 58.5% were operable. 75% of the right-sided lesions, 80% of transverse colon lesions, 63% of splenic flexure and descending colon lesions, 30% of sigmoid lesions were oper-

able. Of 3911 reported resections for carcinoma of the colon, 30.7% had five-year cures—metastasis is relatively late.

I am unable to differentiate with any degree of certainty or reason between several conditions which might be the cause of this young man's trouble. Based upon the results of x-ray examination of the colon, a constricting lesion of the ascending colon in the region of the hepatic flexure was present. It seems improbable that a malignant tumor could have been present for twenty months or more without more effect upon his general health but on the other hand, the early diarrhea may not have been related to the lesion found in the colon, although I doubt this.

My diagnoses in an arbitrary order arrived at by setting down a list of possibilities and then repeatedly changing their order of sequence are:

1. Segmental ulcerative colitis.
2. Hyperplastic tuberculosis of the colon.
3. Amebic colitis.
4. Lympho-sarcoma of the colon.
5. Spindle cell tumor of the ascending colon.

And least probable of all—

6. Carcinoma of hepatic flexure of the colon.

Leslie B. Smith, M. D.:

This 23-year-old male had had five attacks of diarrhea in a period of twenty months. He had intermittent crampy generalized abdominal pains preceding, during, and after these attacks. The cramps were more marked in the right lower quadrant and the diarrhea would last four to seven days, with ten or more stools daily. He had not had chills, fever, nausea, vomiting, night sweats, loss of appetite or change in weight, or other symptoms.

Less than ten months before this admission a barium enema showed a constricting lesion of the right colon. Roentgenograms of the chest, sputum and gastric washing for tubercle B, and a tuberculin test were all negative.

The physical examination was negative except for an undefined mass in the right side. He was not anemic but there was a slight elevation of the white blood count. The stool gave a four plus guaiac test (no mention was made of the type of diet). In spite of the fact that the protocol states that he was admitted because of rectal bleeding (which to me means bleeding from the rectum and not through the rectum) a proctoscopic examination was negative. Hence the blood must have come from above the rectum.

A barium enema showed a markedly constricted ascending colon, narrowed for ten cms., and the cecum did not feel easily. The wall was irregular but without any change in the mucosal pattern except for shelf formation and small ulcerations.

In summary then, we have a young white male who has had intestinal diarrhea with abdominal cramps for twenty months, the roentgenograms showing a consericted lesion involving the ascending colon. There were no other symptoms except the passage of a small amount of bright red blood through the rectum the day before this admission. We are told that all studies for tuberculosis were negative ten months before this study.

There are several tests which must have been done, the results of which were probably omitted from the protocol, namely:

1. The roentgenographic findings in the small intestine.
2. The result of a stool examination.
3. The differential blood count.

In considering this lesion the possibilities may be broadly classified as, 1. Tumors: a. benign, or b, malignant; 2. Extrensic; 3. Inflammatory; 4. Crytogenic.

Malignant tumors of the colon include carcinoma, sarcoma, and malignant melanoma, which constitute about eleven per cent of the deaths from cancer. Of these ninety-five per cent are adenocarcinomas which produce distortion of the mucosal pattern and the other two are quite uncommon. The lymphomas of the bowel constitute about thirteen per cent of all the lymphomas; these are large, nodular, and irregular, producing cuff-like infiltration or polypoid protruding into the lumen, and ulcerations are uncommon. Melanomas protrude into the lumen. I believe that malignant tumors of the colon can be excluded in this case because of, first, the age of the patient (23) — 85-90% of malignant tumors occur in persons over 40; and 60% between 50 and 70 years of age; second, the lack of disturbance of the mucosal pattern of the bowel third, the slowness of progression of the lesion. We are led to believe that there was very

little change in the lesion during ten months; and fourth, because of the lack of constitutional manifestation, especially anemia, weight loss, and evidences of metastasis. The symptomatology of cancer of the colon is not characteristic, hence it is of little value in the differential diagnosis of lesions of the colon.

The benign tumors, adenomas, lipoma, myoma, fibromyoma, angeoma, lymphnoma, neurofibroma, and teratoma, are excluded because of their extreme rarity without producing polypoid lesions.

There are many classifications given to cover the inflammatory lesions of the colon, varying mixtures based on etiology and pathological changes, and their location. None of them are very clear or satisfactory.

There is considerable confusion as to the role of the streptococcus in the production of lesions of the colon and its etiological status is not generally agreed upon. There is no history of bacillary dysentery or its manifestations, hence the late results of such a disease is most unlikely. I do not believe that we are dealing with an allergic individual because there are no findings or history of it given.

The chronic granulomas of the colon which exclude the rectum are to be seriously considered. These may be subdivided into, 1. Specific, such as those due to the tuberculosis bacillus, entamoeba hystolytica, spiochaeta pallidium, blastomycosis, lymphopathia venereum, and actinomycosis. Tuberculosis of the lungs has been excluded by two studies, by negative roentgenograms of the chest, negative sputum and gastric washing and a negative tuberculin test. Tuberculosis causes changes in the mucosal patterns which are absent in this case, and Boccus states that in the United States primary tuberculosis entero-colitis is so rare in adults that it needs little consideration. Therefore, not being of a mind to make a diagnosis which can not be in the least substantiated, I will discard tuberculosis.

Chronic amoebic granuloma is more difficult to exclude, especially when they are so kind as to omit any data regarding the findings in the feces. It is most common in the rectum and the cecum, and a tumor may be palpable. Boccus states that the roentgen examination cannot be expected to make the differential diagnosis and in some instances only a microscopic examination of the removed tissue can establish the diagnosis.

Blastomycosis is very rare and also usually attacks the lungs and skin.

Actinomycosis may be manifest any place in the intestinal tract but is usually evident in the ascending colon and the cecum. It usually produces constitutional symptoms and forms multiple symptoms with sinus tracts—all of which are absent in this case.

Diverticulae are the most common cause of chronic granulomatous changes in the bowel with constricting lesions, but they are absent in this case.

Lymphopathia venereum is dismissed because of the lack of involvement of the rectum.

Although ulcerative colitis usually begins in the rectum and in 45% of the cases it exists only in the rectosigmoid area but may gradually extend to the more proximal portion of the bowel, in 95% of the cases (Boccus). More and more cases are now being reported which involve only isolated segments of the colon. These are called regional or segmental types of ulcerative colitis (Barbosa, Bargen and Dixon-Mayo Clinic), and constitute four per cent of the cases at the Mayo Clinic. It is more frequent in the right half of the colon and has been termed "right sided colitis," and extended into the terminal ileum in 18% of their cases. The patient may be in good physical condition, as is true of the case under discussion, and the symptoms consist mainly of abdominal cramps, occasional loose stools and occasional blood, or the symptoms may be more acute, with fever, toxemia, but the diarrhea is rarely severe. The roentgenologic appearance consists of narrowing, hyperirritability, shortening, or loss of haustrations, with a normal appearance of the rectal mucosa—in this case small ulcerations are described.

Terminal regional ileitis, or nonspecific enterocolitis, originally described by Cronn, 1932, as involving only the terminal ilium since has been recognized by him and others as possibly involving any portion of the bowel, except the duodenum, including the colon. It affects young individuals most frequently following adolescence, as is true in the case today. The disease progresses to form marked narrowing of the bowel, varying degrees of mucosal ulcera-

tion, and the most constricted areas lack any semblance of the normal pattern.

About the only real differential diagnostic feature between nonspecific enterocolitis and ulcerative colitis is the absence of lesions in the rectum and sigmoid in the former, but even this rule may fail. Probably the most important point of differentiation is the dilatation of the ilium in ulcerative colitis as contrasted to the constriction present in enterocolitis. Pathologically the two disease do not differ in the colon.

It is indeed most distressing that we have not been given any data as to the condition of the terminal ileum except that 10 months before gastrointestinal roentgenologic studies are reported as normal. However, early in terminal ileitis the lesion may be missed by roentgenoscopic examinations.

Last to be considered are the extrensic lesions which may give rise to constrictive lesions of the colon. The most common in this group would be ruptured appendicitis in which the abscess extends up along the cecum, giving rise to a chronic granulomatose thickening of the wall of the colon. There is no history of an acute febrile course which usually precedes such a lesion or other evidence of a previous abscess formation. By the same token, a ruptured ulcer would be unlikely, as would be extension of a supperative process from any of the other viscera. However, ruptured appendicitis is known for its atypical course and cannot be definitely eliminated.

Lesions of the kidney may encroach on the ascending colon, but we can discard this because the pyelogram was normal.

My diagnosis of this case is, segmental ulcerative colitis (regional colitis), or ileo colitis, (right sided colitis, etc.) since these two conditions cannot be distinguished in the absence of a description of the ileum.

DIFFERENTIAL DIAGNOSIS

Dr. Charles G. Mixter: I think that, at once, one comes to the conclusion from the history of crampy, generalized, abdominal pain, the change in his bowel function, the blood by rectum, and the presence of a probable mass in the right side of the abdomen, as well as the x-ray findings, that we are dealing with a gastrointestinal lesion probably of the large intestine, but possibly of the small intestine.

May we see the x-ray films?

Dr. Laurence L. Robbins: This is the lesion, approximately 8 cm. in length, in the ascending colon extending nearly to the hepatic flexure. The lumen appears to be narrowed to about 2 or 3 mm. in diameter—perhaps 5 mm. at its widest portion. I do not believe that one can be absolutely sure of ulceration, but certainly the possibility is suggested. One thing that does appear to me more significant than is expressed in the report is that the margins are not typically "shelf-like" and seem to change the least bit in the various films. There is absence of the normal mucosal pattern. The chest is negative.

Dr. Mixter: That does not correspond with the usual spool-like type that one would associate with cancer of an obstructive nature.

Dr. Robbins: Not typically.

Dr. Mixter: From these findings we can rule out the other systems, and limit our consideration to the intestinal tract.

As I read this over, there came to mind, of course, the different lesions that I associate readily with three of the factors here—namely, the probable mass, the presence of blood, substantiated by one episode of bright-red bleeding and the 4+ guaiac test and the x-ray findings. I can remember years ago as an intern here, when Dr. Maurice Richardson would see a case with an obscure diagnosis, he would always say, "Well, I will take the appendix against the field." One always does have to consider the possibility of chronic appendiceal abscess, but I think we can rule it out on account of the duration of the story, the lack of emaciation, the lack of fever and the lack of the typical onset with the attack, and perhaps the presence of diarrhea.

Actinomycosis perhaps would come to mind from the presence of a mass, but again, if the story is as long as the protocol tells us, one would expect the patient to have a frank abscess by this time. Furthermore, in my experience, blood is not a feature in dealing with actinomycosis of the cecum.

Sarcomatous lesions, of course, are more frequent in the small than in the large bowel, and the pressure defect is lateral in type, not the annular type that these x-ray films suggest. The patient could have had bleeding from ulceration, but he was in good physical condition,

had a surprisingly good red-cell count, and his white-cell count was only slightly elevated. I think that we can rule out sarcomatous lesions, particularly the lymphoblastic group.

Occasionally one sees a rare case of simple ulceration of the colon. We have had two or three such cases in our clinic at the Beth Israel Hospital. They are generally seen in the older age group, patients who are around fifty or more, and are characterized by bleeding, and by the presence of an ulcer, generally of good size, picked up by x-ray examination. What the etiology is, I do not know. We have not seen them in the perforated stage. Here we find a definitely long, tubular, constriction lesion, so we can rule out simple ulceration of the colon.

Diverticulitis, of course, will cause a constriction and a mass. Diverticulitis is a disease of the old-age group. It is usually, however, not characterized by bleeding. It is almost invariably multiple, and it is much more prone to involve the left colon than the right. The chances are, from all these facts, that we can discard that as a possibility.

Ileocecal tuberculosis is a possibility. Here, in the East, where the majority of milk is pasteurized, the surgical tuberculous lesions of childhood are rare. They have disappeared remarkably in the last thirty years or so. Another large entity that was frequently placed in the group of ileocecal tuberculosis has been removed from that category by the recognition of regional enteritis ,or terminal ileitis. Ileocecal tuberculosis, however unquestionably occurs. Sometimes tubercle bacilli can be picked up in the stools. In the last case that I personally encountered, there was marked involvement of the appendix, which resembled a good-sized yellow banana. That patient had tubercle bacilli that were readily identified in the stool. Usually, of course, there are accompanying signs—evidence of calcareous nodes elsewhere in the abdomen or signs in the chest. It is frequently accompanied by quite severe bleeding and usually by tenesmus. This man was in good physical condition and had no anemia, and I should say that his general condition did not fit the picture of ileocecal tuberculosis.

The patient was twenty-three years old, and because of that, at first glance, one rules out cancer of the ascending colon. Of course, that does not always hold. We have had four or five cases of intestinal neoplasm in the twenty-year-old group. One boy that we had a couple of years ago came in with a mass and had a distinct family history of carcinoma, and his father had died less than five years before of carcinoma of the rectum. He had carcinoma of the rectum and a diffuse polyposis. At the time of excision we did an abdominoperineal resection and took out the greater part of the sigmoid as well. It showed four degenerative polyps that were definitely carcinomatous. Later we resected the whole colon. Nevertheless, he died of his disease within some three years. So we cannot rule out carcinoma simply on the age. What does he not show that he ought to have to fit the diagnosis of carcinoma? In the first place I think that it is unusual for a carcinoma of the colon to be 8 cm. long. I do not know what the radiographic interpretation would be, Dr. Robbins, but would you not say that that was a long lesion for carcinoma?

Dr. Robbins: I think that is true anywhere except in the ascending colon, where some of the lesions are extensive. I have seen carcinomatous lesions much longer than 8 cm.

Dr. Mixter: Of course a carcinoma of the ascending colon is usually a lateral-wall lesion that tends to bleed readily and is the cause of marked anemia. A lesion that is associated more truly with the hepatic flexure is annular, and our experience has been that a carcinoma as long as this is out of the ordinary. Certainly I believe that that type of growth is not characteristic of what I should expect with a true annular lesion of the colon. As Dr. Robbins says, it cannot be ruled out, but it would be a little unusual for a patient to have a cancer of that size that had been going on one year and eight months. I should not expect him to have a red-cell count of 5,700,000 with 86 per cent hemoglobin. Furthermore, there was no evidence of malnutrition or cachexia. I think that it is very unlikely that we are dealing with a carcinoma.

It boils down then to other lesions that we should have in mind. The first is ulcerative colitis, and the second is perhaps its first cousin—regional enteritis. Where the dividing line comes is hard to say. It is anybody's guess. The etiology of both diseases is unknown, and they certainly merge one into the other. With ulcerative

colitis there may a backwash infection into the terminal ileum, and we know certainly that regional enteritis may involve the colon—that is, involvement of the ascending colon or skip or contact areas in the sigmoid. It is true that in regional ileitis the frank exhibition of blood is fairly rare, but we have had a definite small group of such cases in our series, and the presence of blood does not, by any means, rule it out. The story is a bit suggestive of regional enteritis. The chronicity, the changes in bowel habit, with diarrhea and intermittent, generalized, crampy pain, and the presence of a mass all fit in with the later stages of the disease.

Before I touch on regional enteritis any further I should like to say that we recognize ulcerative colitis as a disease commonly encountered in the left and not the right colon. Apparently it is prone to start on the left side, and is usually picked up by proctoscopic or sigmoidoscopis examination. Here we have the evidence of a normal proctoscopic examination of the rectum, and I judge that the anal canal was also normal. In other words, we cannot explain the bleeding on the basis of a hemorrhoidal gush. Certainly, we cannot explain it by an ulceration of the rectum or of the lower sigmoid. Frank bleeding is not particularly uncommon in ulcerative colitis, but the lesion is rare on the right side—perhaps 10 per cent or less originate in the right colon. It is also rare to get an isolated lesion such as this with only slight evidence of involvement in the rest of the right colon, but it would be extremely difficult to rule out completely that diagnosis. I recall a case that I had only three or four months ago—a woman in the early thirties who had a diagnosis made by x-ray of splenic-flexure obstruction probably due to carcinoma. At operation she had a mass that clinically suggested carcinoma, involved the perirenal capsule, and was firmly adherent to the left kidney. On pathological examination it was proved to be a localized area of ulcerative colitis. The thing that gave the show away, so to speak, clinically was the fact that when the resection was done I inspected the descending colon and saw ulcers in the descending colon that were not visible by sigmoidoscopic examination. How far they extended I do not know, but certainly, to the limit of the specimen—10 to 12 cm.—ulcers were still present. Thus there may be isolated areas of inflammatory reaction that simulate carcinoma but that are essentially a localized lesion. Therefore, it would be extremely difficult, to my mind, to rule that diagnosis out.

I believe that this patient had regional enteritis. We recognize four clinical stages of the disease. The first is one of intra-abdominal irritation or inflammation. The second stage, one of ulceration, in which the ulcers tend to be laid down along the mesenteric border, is accompanied by diarrhea, often mucus and occasionally blood, and simulates in its symptomatology an ulcerative colitis. The third stage, that of obstruction, corresponds to the type of disease presented by this patient but which usually, of course, originates in the terminal ileum. It may, however, be low in the large bowel. We have had several cases limited to the large bowel, in which pseudopolyposis of the mucosa and obstructive symptoms became definitely manifest. The fourth stage is that of fistula and abscess formation. The disease, of course, is prone to fistula formation. Our statistics show that well over one-third of our patients have fistula or abscess. The sinus frequently forms in previous laparotomy wounds, often in the incision of an appendectomy, which has not cured the disease. It may frequently pass blindly into the mesentery and form an abscess. It may pass to the cecum, or it may adhere and form a fistula to the sigmoid or into the bladder. We have had several cases in which a fistula formed in the perineum or by passing out the sacrosciatic notch and pointing behind the trochanter of the femur on either side. One patient several years ago came in with five different fistulas, including one in the groin and one in the gluteal region.

My diagnosis is regional enteritis, with probable involvement of the terminal ileum, although there is no good evidence to substantiate the latter, except that, on the law of chances, this might have been a spill-over from a terminal ileum infection that had progressed and localized in the ascending colon. It may have been ulcerative colitis, but my first choice is regional enteritis.

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Council on Pharmacy and Chemistry: New and Non-official Remedies, 1949, Xanthine Derivatives, Philadelphia, J. B. Lippincott Company, 1949, p. 323.

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DR. MIXTER'S DIAGNOSIS

Regional enteritis of colon.

Terminal ileitis.

ANATOMICAL DIAGNOSIS

Regional enteritis of ascending colon.

PATHOLOGICAL DISCUSSION

Dr. Benjamin Castleman: The specimen we received was a large resection of the right colon and the terminal ileum. About 7 cm. from the ileocecal valve the ascending colon, for a distance of 7 cm., was markedly narrowed and thickened. The mucosal surface was irregular, and there were numerous shallow ulcers with a few mucosal pseudopolyps. Grossly this lesion could be either ulcerative colitis or regional enteritis.

I personally believe that these two diseases are first cousins, as Dr. Mixter suggested. When regional enteritis involves the colon it should look like an ulcerative colitis grossly. Since the small bowel is thinner and more mobile, one does not expect it to respond to an inflammatory reaction in the same way that the colon does. In the cases of regional enteritis involving the colon that we have seen the colonic lesion in the gross looks like ulcerative colitis, so I do not believe that one can tell on gross inspection which disease it is.

Microscopic sections showed a subacute and chronic process with a cellular infiltration of eosinophils, polymorphonuclears, lymphocytes and mononuclears—findings seen both in ulcerative colitis and in regional enteritis. The only possible differential clue that the morphologist has is to find tubercle-like lesions with giant cells in the mucosa or wall of the bowel; these are found in about half the cases of regional enteritis and are almost never found in ulcerative colitis, although we have seen them in two cases of diffuse ulcerative colitis. This case did show a few tubercle-like lesions with giant cells, so that I am more inclined to believe that the lesion was regional enteritis of the colon rather than right-sided isolated ulcerative colitis. It certainly was not tuberculosis.

Dr. Mixter: Were there lesions in the terminal segment of ileum?

Dr. Castleman: No.

TOPICS OF CURRENT MEDICAL INTEREST

REPORT OF THE DELEGATE

House of Delegates, American Medical Association

San Francisco, Calif., June 26-30, 1950

The House of Delegates convened at 10:00 A. M. in the Palace Hotel June 26. Thereafter, sessions were required each day through Thursday, June 29. An enormous volume of business was presented to the House, including several lengthy reports from the Board of Trustees and its several Committees, the various Councils and House special Committees, and from the Delegates of many States, Scientific Sections, and Government Agencies.

On Tuesday evening, during a session of the House, and before a large assembly of doctors and their wives, the incoming President of the A. M. A., Dr. Elmer L. Henderson, Louisville, Ky., presented his inaugural address, which was broadcast nationwide to every community in this nation over two national radio hook-ups. Excerpts from this dignified, yet forceful message appear in the July issue of Arizona Medicine.

During the final meeting of the House on Thursday afternoon, Dr. John W. Cline, San Francisco, was elected, without an opposing candidate, to the office of President-Elect of the A. M. A., while Dr. R. B. Robins, Camden, Ark., was named Vice President. Dr. J. J. Moore and Dr. George F. Lull, Chicago, were retained as Treasurer and Secretary respectively. Dr. F. F. Borzell, Philadelphia, succeeded himself as Speaker of the House, and there were no opposing candidates against Dr. J. R. Reuling of New York for Vice-Speaker. As a new member of the Board of Trustees, Dr. L. W. Larson, Bismark, N. Dak., received the majority vote over Dr. Bradford J. Murphy of Denver, to succeed Dr. J. H. Fitzgibbon, Portland. From the eastern section, Dr. Thomas P. Murdock was elected to succeed Dr. J. R. Miller, of Hartford, Conn.

Your Delegate was re-elected by the House to succeed himself for another three-year term as a

member of the Council on Medical Service. New York was chosen for the meeting place in 1953.

To recount the high lights of the addresses of the President of the A.M.A., its President-Elect, the Speaker of the House, and the voluminous reports of the Board of Trustees, as well as the various Councils and Committees, would completely fill our Journal from cover to cover, and no attempt will be made to do that in this report. These are all printed in full, and should be read by every member of the Association, in the Journal of the A.M.A., issues July 15 and 22.

However, a review of some of the important measures acted upon and adopted is in order, and an attempt will be made to brief them in part.

Much interest centered upon the contents of the "Hess Report," so called because Dr. Elmer Hess, Erie, Pa., a Delegate from Pennsylvania, and member of the Council on Medical Service, has been the Chairman of a Special Committee of the House, known as The Committee on Hospitals and the Practice of Medicine. Emphasis upon this report will be given in this review, so that physicians in general, and pathologists, anesthesiologists, radiologists, and physiotherapists in particular, as well as all hospitals, will understand more fully the implications embodied in the final draft, and adopted, with some suggested changes by the Reference Committee which brought it before the House for final acceptance. After the report was finally adopted by the House, a motion was made and passed that one year be extended to the hospitals and the physicians in the specialty groups involved, to adjust all differences to the mutual satisfaction of both sides, before any action be taken to enforce the provisions of this "Hess Report."

The "Hess Report" emphasizes the following principles which guided its recommendations. (a) As a matter of law, the corporate practice of medicine is illegal in most states, especially when a corporation hires a professional man and sells his services to the public for a profit to that corporation. Fee splitting with a corporation is just as unethical as fee splitting with another physician.

(b) The physician must be guided, not only by the laws of the various states, but, in his relationship with hospitals, when employed, he finds that the Principles of Medical Ethics of the A.M.A. provide a distinct bearing upon his arrangements. These principles are found in the "Code" under the following Chapters and Sections, and Titles, Chapter 1, Sec. 3, "Groups and Clinics"; Chapter III, Article VI, Sec. 2, "Conditions of Medical Practice"; Chapter III, Article VI, Section 2, "Contract Practice", and Chapter III, Article VI, Section 6, "Purveyal of Medical Service." This last named Chapter, Section and Article should be quoted because of its vast importance to the subjects under discussion in the "Hess Report," to-wit: "A physician should not dispose of his professional attainments or services to any hospital, lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit exploitation of the services of the physician for the financial profit of the agency concerned. Such a procedure is beneath the dignity of professional practice and is harmful alike to the profession of medicine and the welfare of the people."

(c) The Principles of Relationships between Hospitals, Radiologists, Anesthesiologists and Pathologists, adopted after approval of the various professional agencies concerned, in 1946, emphasized that the principle obligation of both hospitals and physicians is to serve the best interests of the patient. The Principles also recognized the basic fact that all of the various questions involved, both legal and ethical, must be considered, in the first instance, at the local level, because of the various differences which of necessity exist in many sections of the country.

(d) Local conditions, therefore, must decide the various arrangements and conditions of professional practice in reference to both hospital facilities and the medical personnel and their relationships.

(e) One of the factors that have aggravated physician-hospital relationships is the inclusion of medical services, in contrast to purely hospital services, in the contracts of many of the voluntary hospital service plans. Many plans go far beyond pure hospital service, such as room accommodations, board, operating room, medicines, surgical dressings and nursing care, and include various types of purely medical services, such as those performed by physicians in the scientific departments. The House of Delegates have re-iterated on several occasions in the past

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the fact that radiology, pathology, anesthesiology, and psychiatry constitute the practice of medicine.

(f) A method to eliminate the above stated paradoxical situation is suggested. In the future, the Blue Cross Commissions and Blue Shield Commissions should cooperate to the extent of writing all new contracts in such a manner that Blue Shield will cover insurable medical services, and Blue Cross will cover insurable hospital services. Private insurance carriers also should be requested to write their policies with this principle of separation of the two types of services in mind.

(g) The Committee believes that, since the physician and hospital are interdependent, it is incumbent on both to be interested in all phases of their scientific and financial relationships. Unfortunately, in many instances, the financial problems of the lay hospital management have been no affair of the staff, or of its professional executive committee. This is wrong, and probably the cause of most of the differences of opinion between physicians and hospital management.

(h) Pathologists, anesthesiologists, radiologists, and psychiatrists should have equal rights and privileges of active staff membership, with the same rights pertaining to members of the staff of other departments, and should be nominated and appointed in the same manner as are the chiefs of other major departments in the same hospital.

(i) The revised Principles of Medical Ethics has been written with all these various factors in mind, and is broad enough to cover all possible ethical physician-hospital relationships, while the Constitution and By-Laws of the A.M.A. cover methods of procedure for all persons who have a complaint, so that they may eventually approach the Judicial Council, whose function is specifically delineated.

The Committee on Hospitals and the Practice of Medicine then went further and suggested the following in order to activate the report.

(a) In event of controversy between physician and physician, or physician and hospital management, on these problems, it is recommended that, since the local conditions must be taken into consideration, these problems be resolved insofar as possible at the local level, first at the staff-management level itself; if this fails, assistance of the county medical society should be requested. Failing at this level, the problem should be submitted to a committee of the state medical association for review and recommendation. Failure through these channels, the Constitution and By-Laws of the A.M.A. provides that "The Judicial Council may, at its discretion, investigate general professional conditions and all matters pertaining to the relations of physicians to one another and to the public and made such recommendations to the House of Delegates or to the constituent association as it deems necessary."

(b) To implement settlement of controversies, it is recommended that each component county and state or territorial medical association appoint a Committee on Hospital and Professional Relations.

(c) Another approach to settlement of differences of opinion is through the local and state hospital associations, and county and state medical organizations could very well effect liaison with these groups in the settlement of problems involving physician-hospital relationships.

As a guide and to assist further the activation of the suggestions in the "Hess Report," additional suggestions were provided for use of the various physicians, county and state associations, as:

(1) That the costs of medical services rendered in hospitals be separated from the nonmedical costs, and that these items appear separately on the statement submitted to the patient.

(2) Quoted previously, Section of Chapter III, Article VI, of the Code of Ethics concerning exploitation of any physician for financial gain by any agency, safeguard should likewise be developed to prevent any physician from exploiting any hospital or agency. Neither hospital nor physician rendering professional services should exploit the patient or each other.

(3) Fees for medical services, distinct from purely hospital services, which are collected by the hospital should be established by joint action of a representative committee of the staff to include the head of the departments, the administrator and the governing body of the hospital.

(4) The basis of financial arrangement between hospital and physician shall be salary, commission, fees, or such other method as will best meet the local situation, consonant with the

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Principles of Medical Ethics and with due regard to the needs of the patient, the community, the hospital and the physician.

In disposing of the report of the Committee on Hospitals and the Practice of Medicine, the Reference Committee handling this subject recommended adoption with some minor changes and amendments detailed for more clarity, and also recommended that the supplemental report of this Committee should be referred to the Judicial Council for its information in establishing proper procedures by which these proposals shall to the greatest possible extent be accomplished.

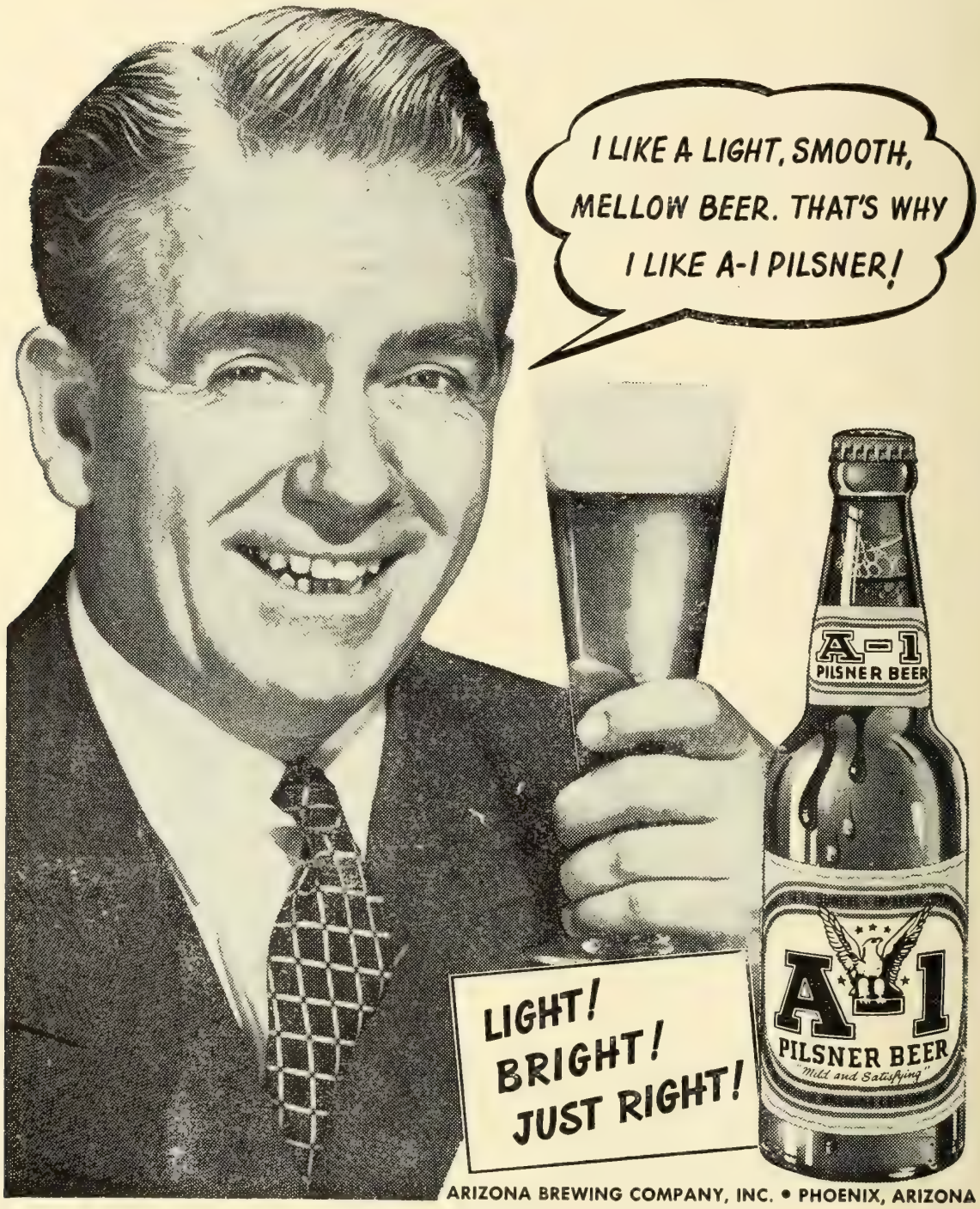
Other important measures adopted include the following:

Report of the Board of Trustees. The reference committee handling this report recommended for adoption several items of interest, namely: 1. Initiation and implementation of a program for the formation of a Student (or Junior) American Medical Association. 2. Adopted the report of the Committee on Displaced Physicians. 3. Studies to be carried out in order to activate a resolution concerning the "Free choice of Physicians for Federal Employees." 4. Recommended continued and extensive additions to the expansion of the Washington Office of the A.M.A.

The Reference Committee on Medical Education agreed with the recommendation made by the Council on Medical Education and Hospitals pertaining to the Association of Internes and Medical Students wherein this group suffers a lack of good American type of leadership. The report as adopted concludes that the Council and the A.M.A. cannot lend its support to the activities of this Organization as presently constituted. The House agreed that there was need for an independent organization of medical students which will develop policies and activities that are acceptable to the majority of medical students, and that, if and when such an organization is developed, it should have the active support and encouragement of the medical profession. The House also adopted the recommendations of the Council on Medical Education, through its Reference Committee, relative to the "Essentials of Approved Residencies and Fellowships." It adopted the resolutions relative to the establishment and operation of a Department of General Practice in Hospitals. Likewise, it approved the suggestion that the Council on Medical Education receive an increase in its Staff in order to stabilize and standardize the ever expanding program of graduate training in our hospitals in all special branches of medicine. The reference committee did not approve a resolution making it mandatory that a Specialty Board require all candidates in any specialty to have a certain required time in general practice. The House concurred in this suggestion, and adopted another resolution which disapproved of the practice of certain hospitals making specialty board ratings a requirement for appointment or promotion to the Staff.

The Reference Committee on Section and Section Work recommended for adoption a resolution which requests the Council on Scientific Assembly to consider the establishment of a Section on Military Medicine and Surgery in the A.M.A. The House also authorized the Council on Scientific Assembly to provide a minimum of one session of each general assembly, or other designated portion of the scientific program to be devoted to the medical and health problems of our national defense and security, the program to be arranged with representatives of the military departments.

The Reference Committee on Amendments to the Constitution and By-Laws recommended adoption of several suggestions by the Board of Trustees and other resolutions, as follows: 1. That the Speaker of the House appoint an interim Committee of the House of Delegates on Amendments to the Constitution and By-Laws for the purpose of studying and making recommendations regarding such matters as may be referred to it by the House. 2. That the amount of A.M.A. dues be determined by the House at each annual session, so that state associations may have ample time for preparation of statements to their constituents. 3. The Board of Trustees was given specific authority regarding remission of membership dues. 4. The By-Laws be amended so that Associate Fellows of the A.M.A. can participate in the Assembly without right to vote or hold office. 5. The House rejected a resolution changing its ruling regarding the seating of Delegates wherein each Delegate assumes office on January 1 each year following his election. 6. Recommended that the By-Laws be changed to read as follows: "Dues


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to the A.M.A. shall include subscription to the Journal of the A.M.A., such subscription to begin January 1, 1951. 7. The suggestion of the Board of Trustees which would place "Fellowship Dues" at two dollars in the future, instead of twelve dollars customarily in the past, was referred to the new Interim Committee on Amendments to the Constitution and By-Laws for study and report at the Clinical Session in Cleveland in December. Any change in fellowship dues cannot be operative until January 1, 1951 so that the House can act upon the suggestion before that time anyway. 8. Proposal was made to change the By-Laws regarding those who may register at any scientific session of the A.M.A. as: a—Member or Service Fellow. b—Active members. c—Associate, Affiliate or Honorary Fellows. d—Invited guests. e—Medical students of approved medical schools who are certified by their respective deans. f—Interns and residents who are graduates of approved medical schools and who are certified by the superintendents of their respective hospitals.

In the field of Public Relations and Legislation, several items were introduced, together with a discussion of a number of Bills, affecting health matters, which are before the Congress. Those of importance are:

1. The Legislative Committee of the Board of Trustees was requested to review the situation with reference to tax exemption by physicians for the costs of postgraduate education, to the end of introduction of legislation if it deems wise and feasible.

2. The House voted to oppose unqualifiedly, Reorganization Plan 27 for the same reasons that it opposed Reorganization Plan 1 last year.

3. Senate Bill 522 (H. R. 5865). A bill so designed that it would place local health units in the country under substantially direct and complete control of the Surgeon General of the U. S. P. H. S. The bill further defines public health services as "detection and diagnosis of chronic diseases, and such other services concerned with the maintenance, protection or improvement of the public health as the Surgeon General, with approval of the annual conference of the state health authorities may prescribe." These agencies may also make, promulgate, prescribe and administer regulations, "insofar as practicable." These regulations would have the force of law, although not written into the law. The House adopted the recommendation of the Reference Committee which felt that this bill would create or extend a dangerous principle which has progressively become more common in recent years; one that would lead to irresponsible and autocratic powers being conferred on appointed officials who may be subject to political pressure. The Committee felt strongly that the basic services of departments of public health should be limited to the fields of vital statistics, public health education, environmental sanitation, public health laboratory services, prevention of disease and control of communicable diseases such as diseases of childhood, venereal diseases and tuberculosis. It was their opinion that public health departments should not, under any circumstances or any guise whatever, enter into the field of diagnosis of disease, except for the aforementioned purposes, and in the case of indigents, where care is not available through private agencies, or non-indigents with venereal diseases or tuberculosis when private care is not available. The House of Delegates consistently advocates improvement of public health services, reiterated that position at this time, but opposes H. R. 5865 in its present form.

The House also reiterated its previous action by advocating all reasonable steps whereby salaries of public health services shall be paid salaries commensurate with the responsibilities of the positions.

4. Senate Bill 1411 (School Health Services) was again opposed because Section C of the bill permitting of free medical care of all school children up to the age of 18, regardless of ability to pay, is still retained in the bill as of this date.

5. In December 1949, the House took action opposing Senate Bill 1453 and H. R. 5940, bills to subsidize Medical Schools through Federal grants in aid, This action was again reiterated at this session, together with the report of the Reference Committee which states in part, "The A.M.A. should continue to oppose legislation subsidizing medical education until and unless a method can be designed which would make ultimate federal control of our medical schools impossible."

6. The Reference Committee also approved and commended Whitaker and Baxter, the Cor-

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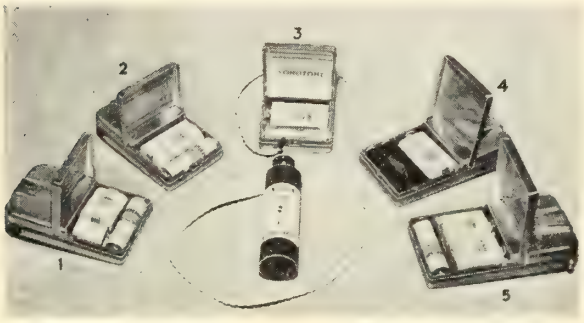
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relating Committee for the Educational Campaign, the Legislative Committee which study and recommend action on all bills affecting health matters. It recommended that the Board of Trustees and Legislative Committee take appropriate action to expand and strengthen the Washington Office of the A.M.A.

7. The House approved the suggestion of the Reference Committee that the Twelve Point Program of the A.M.A. needs augmenting and clarification in some respects, and that the Board of Trustees appoint a continuing committee whose function it will be to study and suggest appropriate changes in the policy which may be made advisable by altered circumstances.

Under items presented by the Council on Emergency Medical Service two recommendations were adopted by the House as follows: (a) A Resolution on Effective Civil Defense Program Planning, and (b) A Resolution assuring adequate medical service advice to the National Committee to function at the "Top Policy Level" of the Chairman of the National Security Resources Board.

In its report the Council on Emergency Medical Service expressed appreciation for (1) the wisdom and foresight of the President of the United States in his appointment of the Chairman of the National Security Resources Board. (2) The teaching of medical and radiological effects of atomic warfare to physicians, toward a community level. Teachers are being taught through the efforts of the National Security Resources Board, and U. S. Atomic Energy Commission and the General Services Administration. (3) Commended the Secretary of Defense because he has helped toward improvement of the efficiency and economy of uses made of medical personnel and facilities in the armed forces.

A lengthy Resolution was introduced again into the House relative to the medical and hospital care of veterans with non-service connected disabilities. After long hearings and careful consideration of the resolution, the Reference Committee believed that it would be impossible in the short time available to deal judiciously with this problem or to make specific recommendations. It recommended that a special committee be appointed and activated without further delay, that this committee be instructed to confer with the several veterans' organizations, hospital organizations, the Veterans' Administration, and other interested groups, with the view toward formulating a program to care for veterans in this category, and that a report be submitted to the House at its next annual session. These suggestions were amended by the House and adopted, so that the "matter will be referred to a committee of five members of the House appointed by the Speaker to report at the next session of the House."

A Delegate from New Jersey presented a Resolution of some length on a Twelve Point Program for the nation's health. In this resolution New Jersey submitted a program designed to meet the challenge of socialized medicine, and would in effect substitute its ideas of a program for Point Number 3 of the A.M.A. Twelve Point Program. It represented a carefully thought-out concept of the whole situation of medical care, and should be read by all physicians because of its relative merits as printed on page 1085, Journal of the A.M.A., July 22. However, the Reference Committee handling the Resolution had this to say, "There is need for a plan, or plans, but whether such plans as are being studied or presented should apply nationally or locally is a matter of opinion now. A satisfactory solution of the problem has not yet been evolved, and although there are many sound principles in the New Jersey plan, there are also so many controversial issues in it that your committee cannot recommend the plan as prescribed." The Reference Committee's report and recommendations were adopted.

Respectfully submitted,

JESSE D. HAMER, M. D.,
Delegate.



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REPORT TO THE ARIZONA MEDICAL ASSOCIATION

Public Health

On invitation of J. P. Ward, M. D., M. P. H., Director of Public Health of the Arizona State Department of Health, your Executive Secretary, on Tuesday, July 25, 1950, at 2 P. M. in the Chambers of the House of Representatives, Capitol Building, Phoenix, attended a preview of a new sound color film on public health entitled: "SO MUCH FOR SO LITTLE." This film, produced by Warner Bros. Studio in cooperation with the United States Public Health Service, has already been awarded the Motion Picture Academy Award of 1950 for being the best educational film of the year. It is well conceived and depicts the possibilities of life from birth through the years of opportunity when protected against possible disease through the effort of a well-rounded public health service.

A few interesting statistics indicated that out of a total of three million anticipated births per year 118,481 babies would be claimed by death through disease and pestilence. In Arizona 50 babies out of every 1,000 births are claimed by death against a National average of 30.

As regards funds appropriated for public health services in Arizona, only approximately 14c per person is provided, a sum far below the National average of approximately 55c.

KPHO - TV — Round Table Forum

Over radio station KPHO - TV on Thursday evening, July 27, 1950, between 9 and 9:30 o'clock, your Executive Secretary participated in a "Round Table" broadcast on Public Health Problems in Arizona arranged through the Arizona State Board of Health. Mrs. Spurling Saunders, President of the Arizona Congress of Parents and Teachers, Dr. Lad Mezera, State Director of the Division of Maternal and Child Health, and Frank R. Williams, State Director of Health Education, also participated in the discussion. The serious health situation now existing in this State which has placed Arizona far down on the list of National public health ratings was probed. I reported that the American Medical Association and the Arizona Medical Association have long recognized the need for adequate full-time health services and that it is considered essential for the well being and health of the citizens of our State. Organization of full time health units by districts or within Counties of this State was expressed as a means to this end. These preventive health services contribute much and will go a long way to alleviate some of our serious health problems existing in Arizona such as infant mortality, tuberculosis, poor sanitation, cancer detection and the treatment of poliomyelitis.

In the light of the grave situation threatening our Nation today, expansion of laboratory facilities within the State to cope with radiological and bacteriological warfare defense was considered a must. It was pointed out that the Arizona Medical Association has from time to time urged the State Legislature to consider legislation to realize this objective.

Respectfully submitted,

Robert Carpenter,
Executive Secretary.

NOTICE

Dr. Marcy L. Sussman wishes to correct a misunderstanding which apparently arose as the result of the announcement recently of his appointment as Clinical Professor of Radiology at U.S.C. This teaching appointment will require his attendance at the University not oftener than one day monthly. It will not interfere with his practice in Phoenix.



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Report on Meeting of the Arizona Chapter of the National Foundation for Infantile Paralysis

On invitation of Dr. J. P. Ward, M.P.H., Director of the Arizona State Board of Health, I attended a meeting requested by the Arizona Chapter of the National Foundation for Infantile Paralysis of those interested in formulating State plans for the care of polio during the coming season. It was held in the nurses classroom of St. Monica's Hospital, Phoenix, Arizona, at 10 A. M. July 7, 1950.

Robert F. Burcaw, Regional Director, and Tom Lillico, State representative, both of the National Foundation, together with representatives of the State Departments of Health and Welfare, State Nurses Association, American Red Cross, State Hospital Association, Osteopathic Association and your Executive Secretary, representing the Medical Association, were in attendance.

Dr. Ward presided and in calling the meeting to order stated that if reported cases of polio are a criteria of the true prevalence of this disease then it is increasing in prevalence every year. In 1949 more cases were reported in this State than ever before; and thus far in 1950 more cases have been reported than for the comparable period in 1949. The purpose of this meeting is to prepare in advance for any emergency in the hope it will not arise; thus being ready to cope with the problem if, as and when presented.

Mr. Burcaw reported that throughout the Nation today there has been organized forty State Planning Committees on polio. Availability of nursing care and equipment, development of public educational programs, etc., are but a few of the activities engaged in by these Committees. They operate on a year-round basis on both the State and local levels.

In outlining present "liabilities" on the basis of past experiences, the following needs were emphasized:

1. Improved reporting of all cases by the Medical Profession.

2. The problem of financing transportation of patients from outlying districts to treatment centers and in instances not alone for the patient, but also for the family. It was noted that a social problem frequently is involved, it being first necessary to obtain the consent of the parents for the release of the patient for transportation to the treatment center, and then, likewise provide transportation of the family who insists upon being with the patient and resulting need for the development of housing facilities at the location of the treatment center during the period of hospitalization.

3. Shortage of trained nursing care, particularly outside the treatment center areas which presently are located in Phoenix (St. Monica's Hospital) and Tucson (Medical Center).

4. Lack of adequate treatment centers for adults.

During the course of discussion it was indicated that medical care generally is adequate and convalescent care for children fairly well supplied. Respiration equipment is reasonably in good supply with emergency equipment loan agreements provided where such equipment is available in nearby areas. An up-to-date listing of all available equipment by County designation throughout the State is maintained in the offices of the State Foundation, most of which equipment, of course, is located within Maricopa County. These are some of the "assets" recorded.

The need for an accurate listing of the names and addresses of all nurses trained in hot pack treatment care was indicated. Approximately thirty practical nurses have been so trained to date.

A Crippled Children's Community Home and out-patient service is maintained with a fifty-bed capacity in Phoenix (Maricopa County) and a fifteen-bed capacity in Tucson (Pima County). As to the lack of adequacy of clinical services outside treatment centers, particularly in the far outlying districts, it was reported that where none exists children are retained in equipped treatment centers for longer periods.

Suggestions for the development of home care services, possibly through the visiting nurses association, and training of registered nurses, and possibly nurses aids, in physical therapy were offered as a means to improved care. It was stated that to date thirty-one registered nurses were already trained as physical therapists, the majority of which are institutional employees located in Phoenix and Tucson Hospitals, two in Prescott and one in the southern

part of the State. St. Monica's Hospital, in its nursing curricula, now includes special training for the treatment of polio; likewise, this institution has recognized the inadequacy of a convalescent program for adults and plans for improvement therein are now being considered.

The State Nurses Association was asked to assume the responsibility of reporting to the Foundation, the names and locations of all nurses trained to administer polio treatment and particularly those available and trained for service during the after-convalescent period of polio cases. The Foundation was requested to make a survey of all hospitals in the State who will accept polio cases and the number of beds available therefor; and the Medical Association was requested to circularize its membership and impress upon the physicians the importance of prompt reporting of all polio cases.

Respectfully submitted,
ROBERT CARPENTER,
Executive Secretary.

Arizona Blue Shield Blue Cross

Attitudes of the public toward the medical profession and the hospitals—and, conversely, the attitudes of members of the medical profession and hospital personnel toward the public, have been the subject of much discussion from the public platforms and in the public prints in recent months. The following letter, therefore, seems pertinent. It was written recently by Charles E. Hauser, M. D., secretary of the Medical Advisory Committee of the Hospital Care Corporation (Blue Cross Plan) of Cincinnati, O., to those who render medical service to Blue Cross and Blue Shield members:

"One of the major arguments advanced to justify the cost of medical and hospital care is that the average American spends more for luxuries than for hospital and doctor bills. In spite of the wide publicity given this fact, the average American continues to cheerfully pay more for luxuries than he grudgingly pays for hospital and medical care.

"In all probability, the reason for this is not that he prefers luxuries to good health. Rather, he looks upon expenditures for hospital and medical service as a loss, not a purchase. Most people seem to feel that they are entitled to good health . . . and would compare a hospital or doctor bill to the cost of a fire or an automobile wreck.

"We need to change this public attitude toward the cost of hospital and medical care. Of course, it is too much to hope that we can make people as happy to pay a doctor bill as they would be to buy a new car . . . but they can be persuaded and educated to look upon the cost of health care as a necessary expense for the maintenance and repair of their most valuable possession.

"Most householders recognize the necessity of keeping their homes and automobiles in good repair. They can be educated to recognize the greater importance of their own physical repair and maintenance.

"One of the best ways to create a proper public attitude toward the cost of hospital and medical service is by encouraging as many people as possible to join voluntary health service plans like Blue Cross and Blue Shield. In this way, they can budget the cost of hospital and medical care. Through Blue Cross and Blue Shield, they can afford the health care they need."

Appointment

The appointment of Allan Rahlf to the newly-created position of Enrollment Manager for the Arizona Blue Cross and Blue Shield Plans was announced August 1 by Ned F. Parish, Assistant Director, in charge of enrollment. In making the announcement Mr. Parish said: "Because of increasing activities involving policy procedures and overall operation of the Plans, it has become impossible for me to continue direct responsibility for enrollment activities. This latter responsibility must now be delegated and I am, therefore, happy to announce the appointment of Mr. Rahlf. He brings a wealth of experience to his new duties accumulated over a period of four years as Senior Field Representative."

STATEMENT

SUBMITTED ON BEHALF OF THE AMERICAN MEDICAL ASSOCIATION BY DR. WALTER B. MARTIN, WITH RESPECT TO S. 2008, A BILL TO CONSOLIDATE CERTAIN HOSPITAL, MEDICAL, AND PUBLIC HEALTH FUNCTIONS OF THE GOVERNMENT IN A UNITED MEDICAL ADMINISTRATION. THE STATEMENT BEING SUBMITTED TO THE SENATE COMMITTEE ON LABOR AND PUBLIC WELFARE ON JULY 11, 1950.

Mr. Chairman:

I am Dr. Walter B. Martin of Norfolk, Virginia, where I am actively engaged in the practice of medicine. As a member of the Board of Trustees of the American Medical Association, which has a membership of approximately 145,000 physicians, I accept this opportunity to submit to your committee comments on S. 2008, a bill introduced by Senator Thomas of Utah, to consolidate certain hospital, medical, and public health functions of the government in a United Medical Administration.

Any action of the Congress that proposes to place on a more rational basis the federal hospital construction program and to more efficiently utilize federal medical personnel, merits sympathetic consideration. It would seem obvious that the hospitalization service needs of the Armed Services, the Veterans Administration and the other agencies of the Federal Government, should, to the fullest extent possible, be closely correlated to prevent unnecessary expenditures for additional construction and to assure the maximal utilization if existing facilities and of available medical personnel.

We are strongly impressed by the Hoover Commission recommendations designed to effect economy in the operation of the several medical services under the Federal Government, provided that economies can in fact be accomplished without sacrifice of the quality of service rendered and without seriously hampering the primary mission of the Armed Forces and the Veterans Administration.

A careful perusal of S. 2008 reveals no evidence of how economies are to be accomplished, how the special functions of the several services are to be preserved or how the quality of medical care is to be safeguarded.

The American Medical Association has repeatedly advocated the consolidation of the medical activities of the Federal Government other than those of the Veterans Administration and the Armed Forces under a single Department of Health. It has many times pointed out the wastefulness of an uncoordinated hospital construction program and has called attention to the abuse of the hospital facilities of the Veterans Administration by the admission to those facilities of non-indigent veterans with non-service connected disabilities. Much of the pressure for new construction would be relieved if this abuse were corrected by Congressional action. Attached are two tables taken from the Annual Report of the Administrator of Veterans Affairs,which show the relative number of non-service connected cases hospitalized in the Veterans Hospitals.

We object particularly to the administrative provisions of the bill. The administrator who is responsible directly and only to the President is given authority to issue regulations without any restraint but that of the President. The Advisory Board, made up of the Surgeons General of the Army, Navy, and Air Force, and the Administrator of the Veterans Administrator or their designated representatives, has no real power. The bill provides that the Board will meet at least once each month to consult with the Administrator on policies or proposed policies. It can in no way control the decisions of the Administrator. It is noted that the Public Health Service with its multiple functions and activities has no representation on the Board, nor has the general public.

The American Medical Association believes that an integrated system of hospitals should be developed for the country as a whole, such as is now developing in many states under the Hill-Burton Act, but that the consolidation of the medical services as proposed in S. 2008 at this time and until such time as careful study has developed more convincing evidence of the wisdom of such a consolidation, would be a risky procedure and fraught with great possibilities of harm.

The Association is of the opinion that the Congress should proceed slowly in this matter and that any action by the Congress should be preceded by a careful study of the entire problem, with particular reference to economy, the effect

on the quality of medical care and on the execution of the primary mission of the Armed Forces, the Public Service and the Veterans Administration.

It further believes that the principal economy to be accomplished is in the effective coordination of the several hospital systems that would provide for joint use of available beds and joint planning in the field of hospital construction. It believes that a central hospital board clothed with authority to adjust the hospital program to the needs of the services could gain the end desired without consolidation of professional personnel.

NEW MEXICO CANCER CONFERENCE

The annual New Mexico Cancer Conference will be held in Santa Fe on October 27-28, 1950, at the La Fonda Hotel.

This meeting for the medical profession of the Southwestern states will have six eminent speakers from various parts of the United States.

The sponsors of the meeting are the American Cancer Society, the New Mexico Medical Society, and the Santa Fe County Medical Society.

COLLEGE OF PHYSICIANS REGIONAL MEETING

PROGRAM

Saturday, October 14, 1950

12:00 Registration, Mezzanine, Pioneer Hotel

12:30 Luncheon

1.30 Panel Discussion: Cortisone and ACTH
Moderator — H. E. Thompson, M. D., F.A.C.P., Tucson
Donald Hill, M. D., F.A.C.P., Tucson
A. C. van Ravenswaay, M. D., F.A.C.P., Tucson
Onie O. Williams, M. D. (Associate) Phoenix
Fred W. Holmes, M. D., (Associate) Phoenix

2:30 Pulmonary Emphysema
Samuel S. Altshuler, M. D., F.A.C.P., Veterans Hospital, Tucson

3:05 Ballisto-cardiography
Hyman Fisher, M. D. (Associate) Veterans Hospital, Tucson

3:30 "The Changing Pattern of Disease."
LeRoy Hendrick Sloan, M. D., F.A.C.P., Regent Professor of Medicine, University of Illinois
Chief Medical Service, Illinois Central Hospital

4:00 Intermission.

4:10 The Shoulder-Hand Syndrome as a Presenting Symptom of Coronary Artery Disease.
David E. Engle, M. D. (Associate), Tucson

4:30 Liver Disease Following Acute Liver Damage
Joseph Bank, M. D., F.A.C.P., Phoenix

4:55 The Asthma Patient in the Southwest
W. B. Steen, M. D. (Associate), Tucson

6:30 Reception

7:00 Dinner (Informal)
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The Program Committee consists of:
W. Roy Hewitt, M. D., F.A.C.P., Tucson, Arizona, Chairman
Harry E. Thompson, M. D., F.A.C.P., Tucson
Kent H. Thayer, M. D., F.A.C.P., Phoenix

The Registration and Arrangements Committee consists of:
Orin J. Farness, M. D., F.A.C.P., Tucson, Chairman
Leslie B. Smith, M. D., F.A.C.P., Phoenix
Arie C. van Ravenswaay, M. D., F.A.C.P., Tucson.

The scientific meeting will be open to all members of the medical profession, and a cordial invitation is extended to any doctor wishing to attend this afternoon program. The evening reception and dinner will be limited to members of the American College of Physicians, their wives and guests.



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Doctor William Dock, Professor of Medicine at Long Island Medical College, who will speak on ACTH and Cortisone, the Ballistocardiograph, and Sodium depletion.

Doctor Joseph W. Gale, Professor of Medicine at the University of Wisconsin, a fine speaker who will present talks on Resection in the Treatment of Pulmonary Tuberculosis, The Crippled Lung, and Carcinoma of the Lung.

Doctor Steward Wolf, Associate Professor of Medicine at Cornell, who presents The Relation of Life Stress to Gastric Function and the Pathogenesis of Peptic Ulcer, The Physiology of Pain with a Consideration of Visceral Pain Mechanism J, Life Stress and Essential Hypertension, and the Internist as a Psychiatrist. All very important and timely.

Doctor John Lawrence of the University of California on The Use of Isotopes in the Clinical Investigation and Therapy, and Current Research at the Donner Laboratory.

Doctor Leon Goldman, Associate Professor of Surgery at the University of California. An excellent speaker who will present Management of Acute Cholecystitis and Nodular Goiter.

Doctor Salvadore Zubiran of Mexico City. Some of you will remember him for his courses for American Doctors sponsored by the American College of Physicians. He will talk on Clinical Manifestations of Malnutrition, Nutritional factors in the Etiology and Treatment of Hepatic Disease, and Liver biopsy as a Diagnostic Procedure.

Doctor M. M. Wintrobe, Professor of Medicine at the University of Utah on Anemias and effect of Acth and Cortisone on the Hemopoetic System.

Doctor Marcy Sussman, Past Professor of Roentgenologly, Columbia University on Body Section Radiography.

Doctor George Piness of Los Angeles on Allergy, and Bronchial Asthma.

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Woman's Auxiliary

REPORT OF NURSES' LOAN COMMITTEE

by Mrs. C. C. Craig, Chairman

The Nurses' Loan Committee was appointed by Mrs. Benjamin Herzberg in May. The members are: Mrs. Carlos C. Craig, Mrs. Don R. Polson, Mrs. Jesse D. Hamer, Phoenix; Mrs. Max Costin, Mrs. D. B. Lewis, Mrs. B. P. Storts, Tucson; Mrs. Harry T. Southworth, Prescott; Mrs. T. C. Harper, Globe; Mrs. Don E. Nelson, Safford. At the first meeting, the Committee decided upon qualifications and rules to be followed in accepting girls applying for the loan. The girl must have a B average. She must be in good health and must furnish record of a complete physical examination other than the one given by the school of nursing. She must furnish three references, preferably one from a teacher, and one from her minister. She must have either her parents or her guardian's signature on her contract as well as her own. She must have a personal interview by some member of the Committee before being accepted. She must repay the loan, which is for $300.00, interest free, at the rate of not less than $12.50 a month until the loan is repaid. She is to start repayment six months after receiving her license to work.

We had money this year for only two girls. We have voted on applicants and our girls will enter schools in September. One girl is from Phoenix, and the other from Tucson. The Committee sent duplicate letters to all high school principals in the state in May, telling of the availability of the loan. One copy was posted on the bulletin board in the schools. The response was gratifying. The Committee also sent letters to doctors' wives in unorganized counties telling them of our project so that they could contribute to the loan if they wished. The loan should be self-sustaining in five years. The Auxiliary is to be commended for its desire to help worthy girls receive an education in a field that is so needed by the Nation.

MR. CALVIN K. SNYDER IS PRINCIPAL SPEAKER AT BANQUET

Mr. Calvin K. Snyder, Washington, D. C., Secretary to the Realtors' Washington Committee, will be the principal speaker during a banquet of a joint meeting of the real estate and medical professions—including wives—at Hotel Westward Ho Tuesday evening, October 24.

The meeting is being sponsored by the Arizona Association of Realtors for the purpose of "acquainting the general public with the dangers rising in the hidden bureaus of Washington," said Mr. J. R. Heron, Globe, President of the Arizona Association of Realtors.

"If there is one person in the United States who is acquainted with and has consistently fought political chicanery in our National Capital it is Cal Snyder," said Mr. Heron. "He is one of the country's most able and one of the best speakers I have had the privilege listening to. His topic should certainly appeal to all members of the Medical Profession, 'Why We Oppose Socialistic Legislation, Especially Socialized Medicine.' "

Mr. Snyder was formerly Executive Secretary of the Society of Industrial Realtors of the National Association of Real Estate Boards, and had an important part in organizing its work for the utilization of existing plant facilities for war purposes, and for sound reconversion of the nation's industrial facilities to peace purposes. He was previously Secretary of the Elmira, New York, Association of Commerce, specializing in the development of new industries. Earlier he spent 15 years in newspaper work as a reporter, advertising manager and as an executive in the business office; he has a background of writing in the field of politics, industry and aviation; he is a nationally-known crusader against bureautic controls by the Federal Government.

The banquet will be open to the public; however, members of the medical and real estate professions will be given the first opportunity to make reservations for themselves, their families and guests, due to the nature of Mr. Snyder's address.

Tickets will be available at the headquarters of the Arizona Association of Realtors, 125 W. Monroe Street (Room 112), Phoenix, after October 1. Mr. Heron, President of the Realtors' Association, will be banquet toastmaster.

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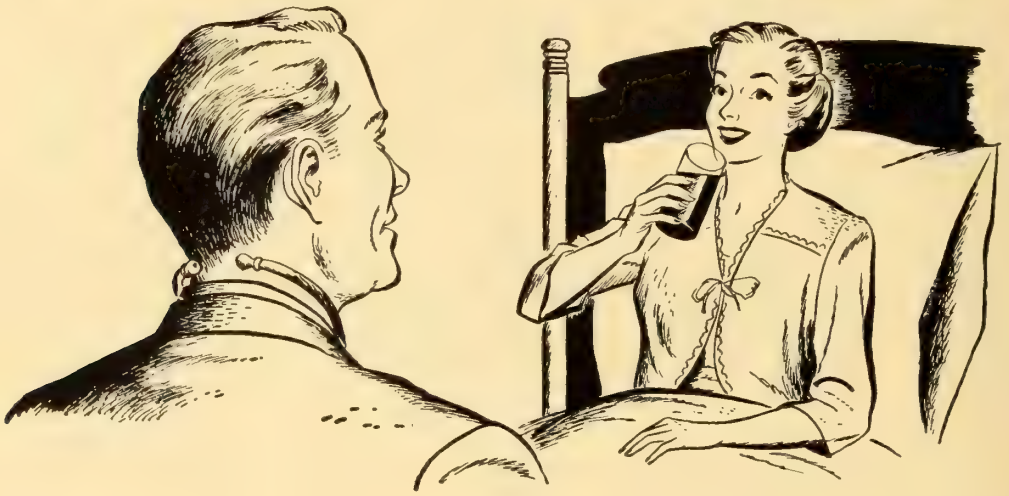
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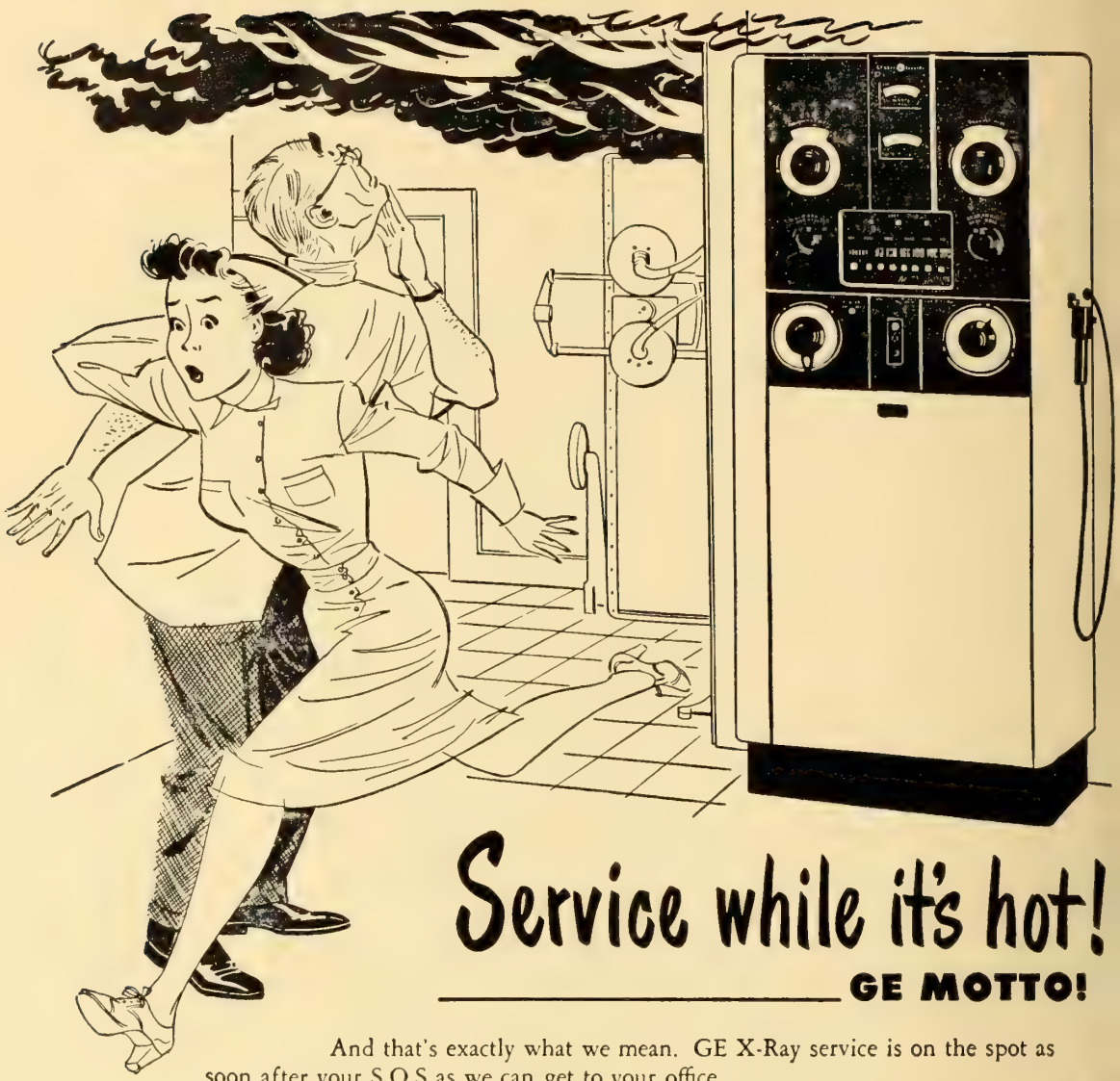
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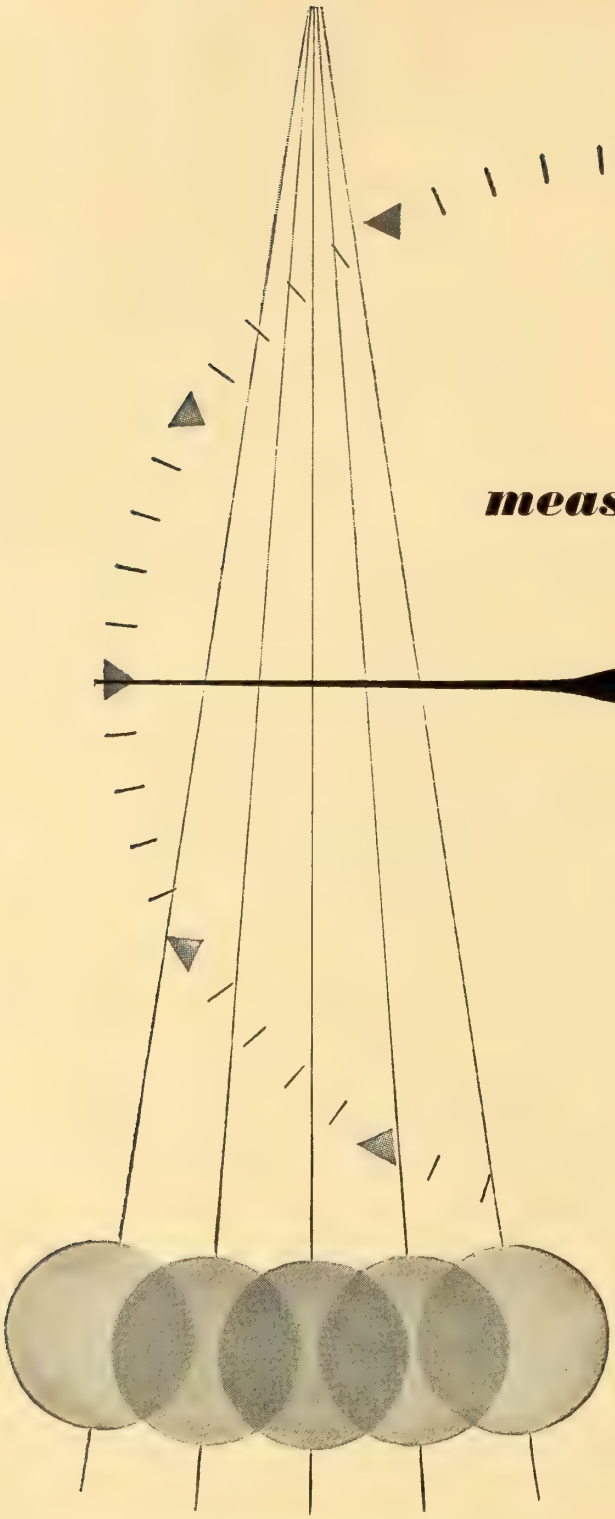
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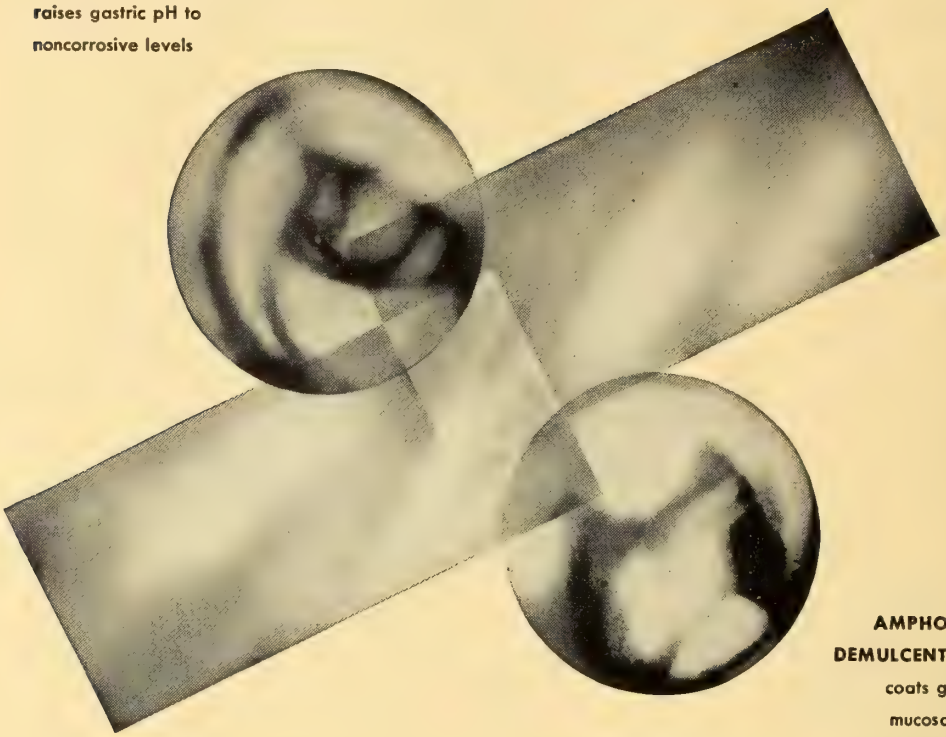
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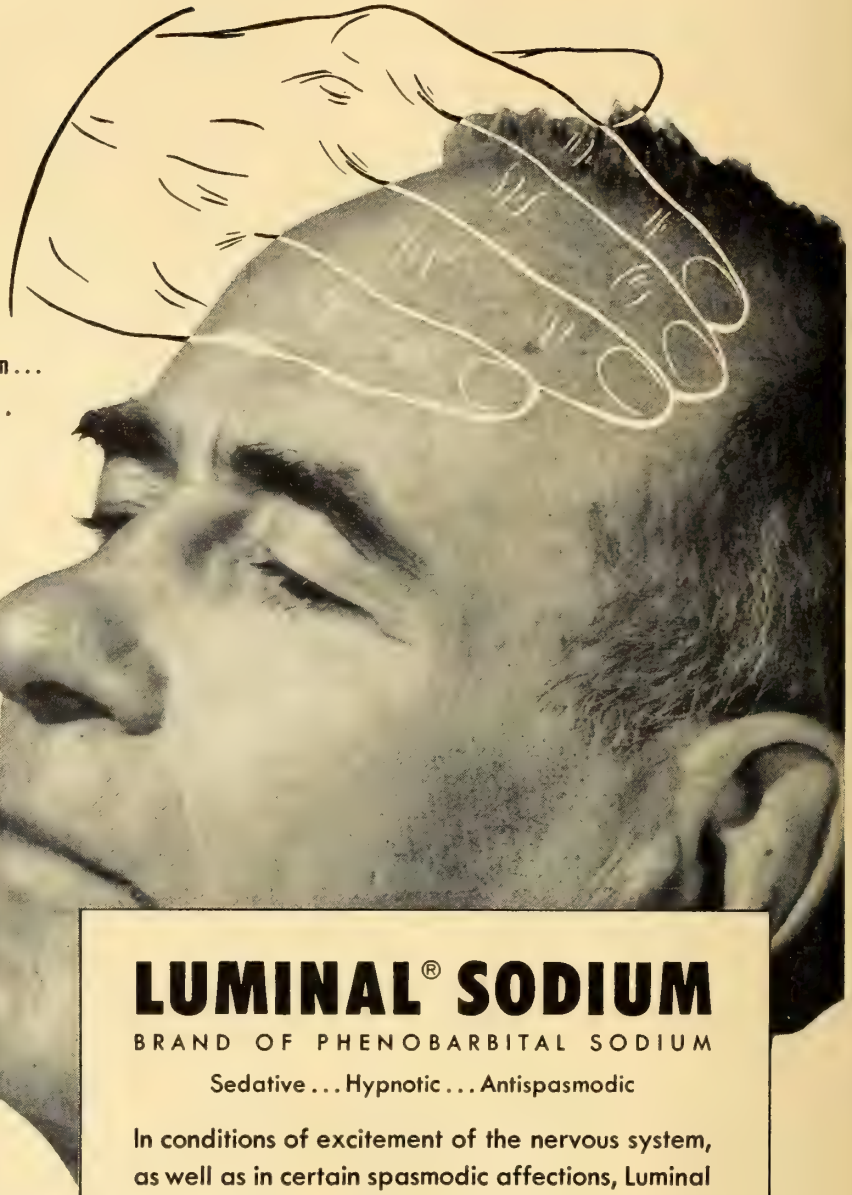


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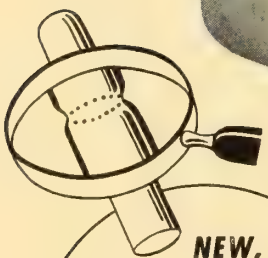
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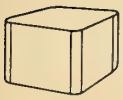
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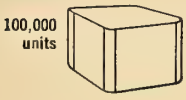
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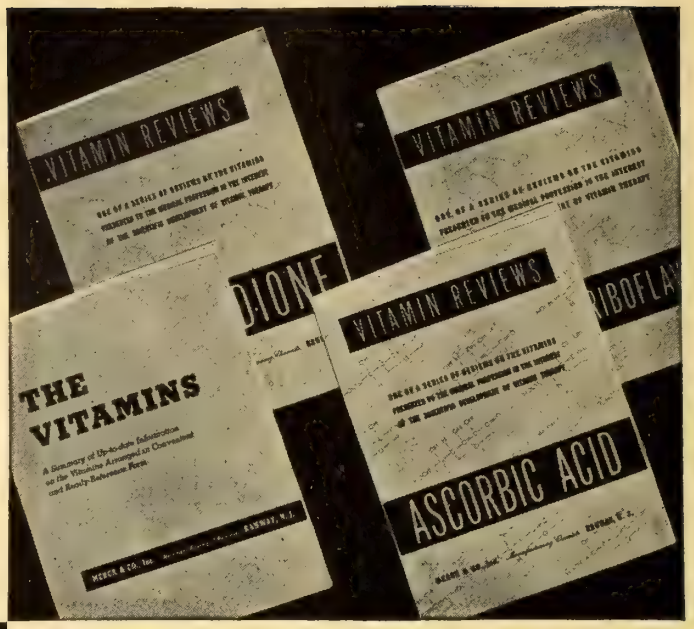
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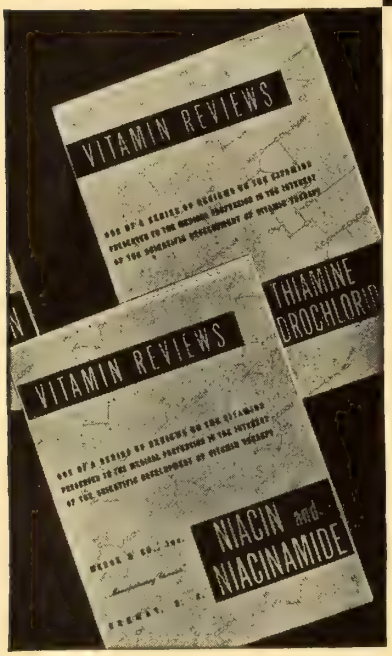
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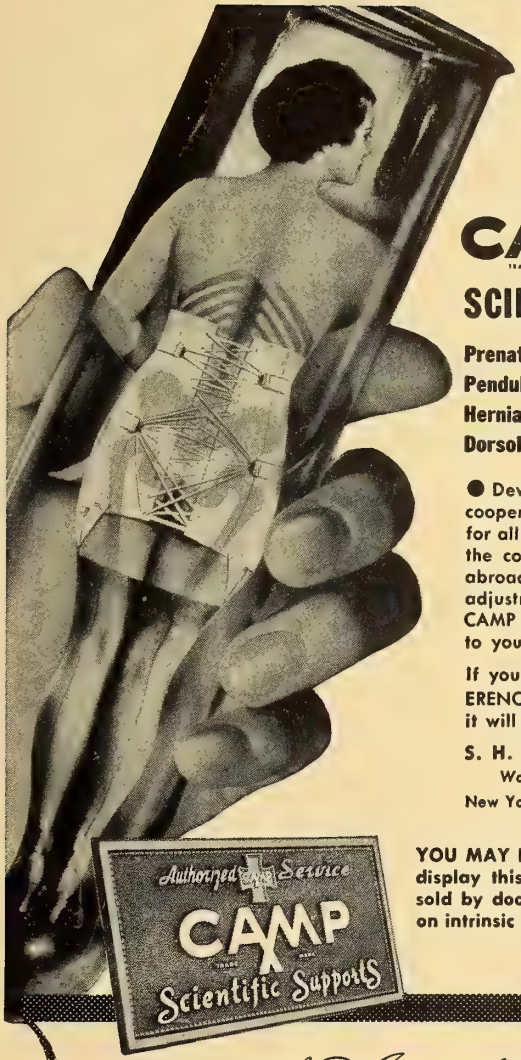
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Partial Index of Contents

- **Factors that produce avitaminosis.**
- **Signs and symptoms of deficiency.**
- **Daily requirements and dosages.**
- **Distribution in foods.**
- **Methods of administration.**
- **Clinical use in specific conditions.**

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A urinary tract infection
Resistant to "... all available antibiotics and chemotherapeutic agents."1
TREATED WITH TERRAMYCIN
M.F., male, age 48
History: Pyelonephritis, 1½ years' duration following ureterocutaneous implants (mixed infection: P. vulgaris, E. coli, Staph. albus, enterococci); previous therapy with all available antibiotics and chemotherapeutic agents without response.
Therapy: Terramycin, 2 Gm. daily for 5 days; orally in divided doses q. 6 h.
Result: Urine culture negative except for P. vulgaris by 2nd day of treatment. Response described as "good".
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Terramycin
HYDROCHLORIDE
New Council-accepted broad-spectrum antibiotic
orally effective — well tolerated
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1. Terramycin may be highly effective even when other antibiotics fail.1
2. Terramycin may be well tolerated even when other antibiotics are not.2
suggested for: acute pneumococcal infections, including lobar pneumonia, bacteremia; acute streptococcal infections, including erysipelas, septic sore throat, tonsillitis; acute staphylococcal infections; bacillary infections, including anthrax; urinary tract infections due to E. coli, A. aerogenes, Staphylococcus albus or aureus, and other Terramycin-sensitive organisms; acute brucellosis (abortus, melitensis, suis); hemophilus infections; acute gonococcal infections; lymphogranuloma venereum; granuloma inguinale; primary atypical pneumonia; typhus (murine, epidemic, scrub); rickettsialpox.
Dosage: 2 to 3 Gm. daily by mouth in divided doses q. 6 h. is suggested for acute infections.
Supplied: 250 mg. capsules, bottles of 16 and 100;
100 mg. capsules, bottles of 25;
50 mg. capsules, bottles of 25.
1. King, E. Q.; Lewis, C. N.; Welch, H.; Clark, E. A., Jr.; Johnson, J. B.; Lyons, J. B.; Scott, R.B., and Cornely, P. B.: J. A. M. A. 143:1 (May 6) 1950.
2. Herrell, W. E.; Heilman, F. E.; Wellman, W. E., and Bartholomew, L. A.: Proc. Staff Meet. Mayo Clin. 25:183 (Apr. 12) 1950
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"In addition to the relief of hot flashes and other undesirable symptoms (of the climacteric), a feeling of well-being or tonic effect was frequently noted" after administration of "Premarin."

Harding, F. E.: West. J. Surg. Obst. & Gynec. 52:31 (Jan.) 1944

"All patients (53) described a sense of well-being" following "Premarin" therapy for menopausal symptoms.

Neustaedter, T.: Am. J. Obst. & Gynec. 46:530 (Oct.) 1943.

"It ('Premarin') gives to the patient a feeling of well-being."

Glass, S. J., and Rosenblum, G.: J. Clin. Endocrinol. 3:95 (Feb.) 1943

"General tonic effects were noteworthy and the greatest percentage of patients who expressed clear-cut preferences for any drug designated 'Premarin.'"

Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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Four potencies of "Premarin" permit flexibility of dosage: 2.5 mg., 1.25 mg., 0.625 mg., and 0.3 mg. tablets; also in liquid form, 0.625 mg. in each 4 cc. (1 teaspoonful).

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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

Literature giving further details about Digilanid and Physician's Trial Supply are available on request.

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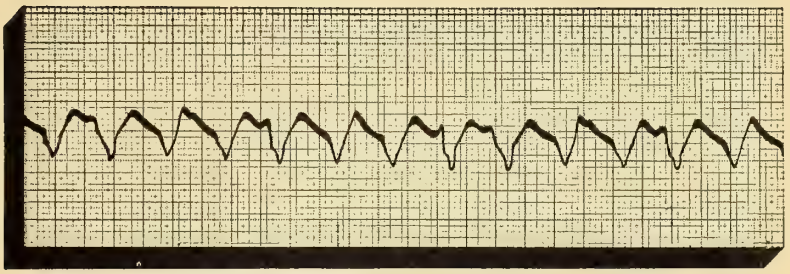
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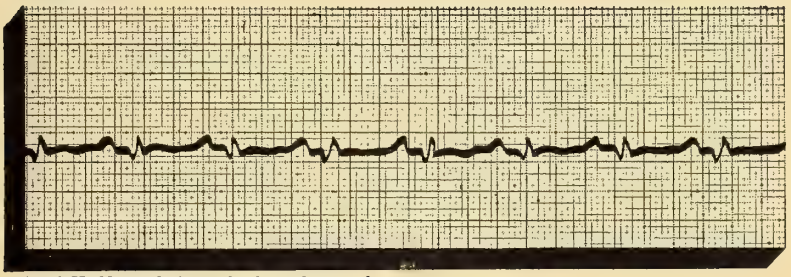
A New Drug..for the treatment of ventricular arrhythmias

BEFORE



Lead II. Ventricular tachycardia persisting after six days of oral quinidine therapy (8 Gm. per day).

AFTER



Lead II. Normal sinus rhythm after oral Pronestyl therapy.

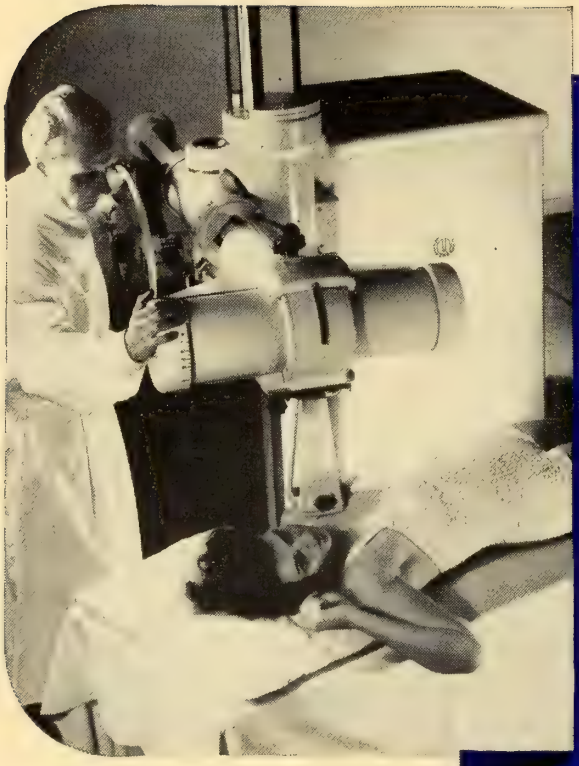
Effective in some patients with ventricular tachycardia who failed to respond to quinidine

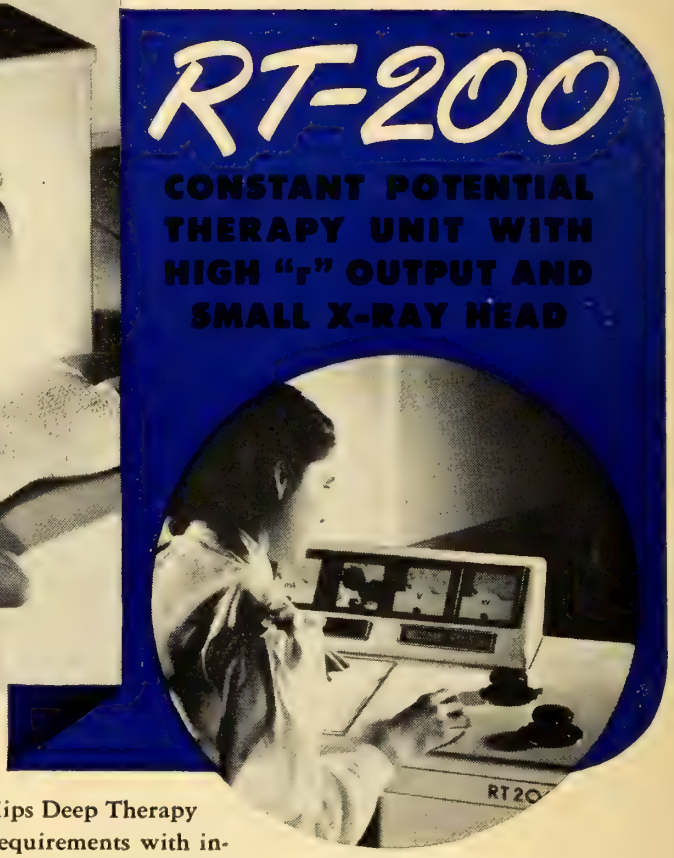
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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 7, NO. 10 OCTOBER, 1950

PRACTICAL RECOGNITION AND TREATMENT OF CARDIAC ARRYTHMIAS

STEPHEN R. ELEK, M.D.*
Los Angeles, California

DURING the oral presentation of this paper, slides of electrocardiograms illustrating the various cardiac arrhythmias were shown. Since this is not feasible in a written paper, the section on diagnosis is somewhat abbreviated and more space is given to treatment. I am eschewing any textbook version of this subject; instead, I am relying on practical experience, teaching and research in this field, particularly in the past decade. I might say that the subject of cardiac arrhythmias has been a hobby of mine and I am both honored and delighted to discuss it with you. I am aiming at a practical exposition of this problem bearing in mind what one can do in the office or in the home.

The arrhythmias to be discussed are as follows:

1. Sinus tachycardia
2. Sinus bradycardia
3. Sinus arrhythmia
4. Premature systoles
   a. Auricular
   b. Nodal
   c. Ventricular
5. Supraventricular tachycardia, which includes:
   a. Auricular tachycardia
   b. Nodal tachycardia
6. Auricular fibrillation
7. Auricular flutter
8. Heart block
9. Ventricular tachycardia
10. Ventricular flutter and fibrillation

It is worth recalling that the generating impulse which initiates and maintains cardiac contraction arises in the sino-auricular (s-a) node, which is located in the right auricle near the opening of the coronary sinus. It then spreads to the auricular muscle and reaches the auriculoventricular (a-v) node, from which it spreads to the common bundle of His located in the upper one-third of the interventricular septum. The impulse then divides into the right and left bundle in the right and left ventricles beneath the endocardium and finally terminates in the myocardium as a fine arborization termed the Purkinje fibers. These specialized areas, such as the s-a and the a-v node consist of specialized muscle tissue, not nerve tissue. They have the unique property of maintained or constantly functioning irritability and rhythmicity. All portions of the heart muscles have irritability and rhythmicity but to a lesser degree than that described for the above specialized areas.

1. Sinus tachycardia:

This is diagnosed when the impulse originates from the s-a node at a rate of 100-180. Heart rates above 180 are usually considered to be outside the s-a node because the rhythmicity of the latter usually does not exceed 180 beats per minute. When in doubt, of course, an electrocardiogram (EKG) should be taken; the presence of a P wave of normal contour signifies that the rhythm is originating from the s-a node. The best treatment is to find the cause, and to eliminate that, for there is no drug which specifically and solely slows down the s-a node. Digitalis, mecholyl, and the veratrum alkaloids (1) will stimulate the vagus or cardioinhibitory nerve but these drugs are not used solely for sinus tachycardia.

2. Sinus bradycardia:

This is diagnosed when the impulse originates from the s-a node at a rate below 60 but usually not below 30 beats per minute. This is most often a perfectly normal finding and requires no treatment at all. A regular pulse around 30 beats

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per minute should arouse the suspicion of heart block; an EKG will elucidate this.

3. Sinus arrhythmia:

This consists of two types: phasic (varying with respiration) and non-phasic (not varying with respiration). It is commonly found in children and young adults and when marked it may be clinically confused with abnormal and ectopic (that is, located outside the normal pacemakers) rhythms, such as auricular fibrillation; indeed, at times I have not been able to differentiate phasic sinus arrhythmia from auricular fibrillation except by the EKG. Usually, however, the presence of phasic sinus arrhythmia may be ascertained by having the patient hold the breath; then the irregularity of the heart beat or pulse disappears and resumes again after breathing. This is important because, aside from presenting clinical confusion, it is a perfectly normal rhythm and requires no treatment. It is caused by variations in the physiological tone or activity of the vagus nerve and commonly disappears in adult life. One other important point must be mentioned: an electrocardiogram of phasic sinus arrhythmia may not infrequently show variations in the height of the P wave (termed wandering pacemaker within the s-a node) and this may lead the unwary interpreter to diagnose an abnormal rhythm, which it definitely is not.

4. Premature systoles:

Except for normal sinus rhythm, premature beats are the most common type of arrhythmia. The patient complains of a sudden awareness of the heart beat or cardiac consciousness, a sudden jumping or flopping of the heart and a pause which excites a dread as to when the next beat will start again. It is usually not possible clinically to determine whether the beat arises in the auricle, a-v node or ventricle. In the electrocardiogram these have specific characteristics. The auricular premature beat is always preceded by a P wave, the P-R interval is greater than 0.12 seconds and the QRS complex is not wider than 0.11 seconds; in addition, the premature QRS complex resembles the normal QRS complex. The nodal premature beat is usually not preceded by a P wave although it may be followed by one (a retrograde P wave), the QRS is of normal width and resembles the normal or sinus QRS complexes. Nodal premature beats are uncommon. The ventricular extrasystole is never preceded by a P wave, the QRS is wider than 0.11 seconds and is bizarre in appearance, that is, looks quite different from the normal or sinus QRS complexes. This is important to know for runs of premature auricular or ventricular systols can, under certain conditions of myocardial anoxemia, give rise to auricular tachycardia and fibrillation and ventricular tachycardia and fibrillation respectively.

When premature beats do not cause symptoms and myocardial infarction is not present, no treatment is required. When symptoms described above are present and the patient is disturbed I have found the following therapeutic program most helpful:

(1) Reassurance: This should be forceful, convincing and based on a thorough examination. Patients will want to know that they do not cause heart disease or sudden death and that the heart always beats again. Extra systoles may occur with heart disease but also with peptic ulcer and cholecystitis or other diseases.

(2) Correct any underlying condition, notably anemia, excessive coffee, tobacco or alcohol, fatigue and apprehension.

(3) Sedation to diminish cardiac consciousness and apprehension: Phenobarbital and bromides are quite adequate. It is best to prescribe them just before the patient has his symptoms such as late in the afternoon, rather than routinely.

(4) Treatment which the patient can perform: pressing firmly on the eyeballs until they hurt, pulling out the tongue to the point of gagging, holding the head between the knees, or an ice bag on the chest. In the main, I have not had too much success with these maneuvers but they are worth passing on to the patient.

(5) Specific treatment:

- (a) quinidine
- (b) papaverine
- (c) procaine amide or oral pronestyl (Squibb) (best in ventricular premature beats)
- (d) potassium salts
- (e) digitalis

Digitalis is placed last because in most patients the other drugs produce the desired therapeutic effect. Any of them may be combined with phenobarbital or bromides. The matter of dosage is considered at the end of this presentation in order to avoid repetition.

5. Supraventricular tachycardia:

A run of three or more premature beats, originating from the auricle or the a-v node constitutes technically a paroxysmal tachycardia. If the P wave is seen preceding the QRS complex

then a definite diagnosis of paroxysmal auricular tachycardia may be made. However, when the rate is fast, e.g., over 180 beats per minute approximately, the P and T waves often cannot be identified. Hence, auricular and nodal tachycardias are grouped under the heading of supraventricular. On auscultation, the rate is fast, that is, 180 beats per minute or more, precisely regular, its rate does not vary with respiration; if the rate is slowed by carotid sinus pressure, it returns rapidly and regularly to its pre-carotid sinus pressure rate. Its clinical distinction from ventricular tachycardia is listed under the latter. I have found this clinical dictum helpful: a rapid regular rate is more common in the normal heart, or the diseased heart without myocardial infarction, and in that case the arrhythmia is presumptively supraventricular.

The treatment may be divided in to therapy during the attack and therapy between the attacks.

Treatment during the attack:

(1) Bed rest: this is not obligatory but the patient will often take to bed anyway.

(2) Over the telephone one may advise eyeball pressure, pulling out the tongue as discussed above. An ice bag on the chest is useful for cold usually diminishes irritability and rhythmicity in the myocardium. Also worth trying is the Valsalva maneuver, namely, taking a deep inspiration, holding the breath and exhaling forcefully.

(3) Sedation: giving barbiturates or morphine sulphate is useful for two reasons:
   (a) Apprehension and cardiac consciousness are decreased.
   (b) Both these agents sensitize the vagus nerve, permitting subsequent carotid sinus pressure to be more effective. This is a common experience and of great importance.

(4) Carotid sinus pressure: This area can best be located by following the carotid artery craniad until its bifurcation is reached. One not infrequently hears the resident physician say that this maneuver is unsuccessful when actually he was not pressing on the carotid sinus. I have found carotid sinus pressure much superior to massage near the carotid sinus. Since hemiplegia has been reported (2) from bilateral carotid sinus pressure, unilateral pressure, trying one side at a time, is recommended. However, I have at times, especially in the younger age groups, stopped the tachycardia with bilateral pressure after unilateral pressure proved ineffective. In youngsters, the carotid sinus is much less sensitive than in adults, so that premedication or sensitization of the vagus nerve with the medication mentioned above, or, in addition using prostigmine, is essential.

(5) Digitalis: For speed and effectiveness of action, digitalis is often unsurpassed, particularly the newer purified glycosides like digoxin and Lanatocide C (Cedilanid). The same result is achieved orally or intravenously, the only difference being, of course, speed of action. Since the patient with supraventricular tachycardia is grateful for a quick termination, probably intravenous digitalization is desirable. A full digitalizing dose need not be used; I usually give half a full digitalizing dose and then wait fifteen to thirty minutes or else apply carotid sinus pressure again, since digitalis also produces vagal sensitization. With the older digitalis leaf preparations, extra digitalis was not given until two weeks had elapsed since its discontinuance, allowing that period of time for excretion. However, the purified glycosides are excreted in from one to four day and then additional digitalis (purified) may then be given.

(6) Quinidine: This may be given in doses which are spread out or concentrated, depending on the speed of action desired. They may be spread out in doses of 3-6 grains every four hours day and night until toxic symptoms occur; or, in doses of six grains every two hours for five doses, every day, the physician always watching for toxicity.

Many cardiologists prefer to administer digitalis before quinidine, since the former will slow the rate even if it does not stop the tachycardia. Stubborn supraventricular tachycardias, which have lasted for days or weeks, are more often terminated by digitalis than by quinidine (3). It is entirely feasible to give quinidine after the patient has received digitalis.

(7) Neosynephrine: Youmans (4) has recently described excellent and rapid re-

sults from the use of 0.3-0.1 cc. of 1% Neosynephrine solution given intravenously. The average dose is from 0.3-0.5 cc. The aim of therapy is to raise the blood pressure, provoke cardioinhibitory reflexes via the aortic arch and carotid sinus and thereby slow or terminate the tachycardia. Cessation of the arrhythmia has occurred within forty-five seconds of injection. I can confirm his results in a smaller number of cases. Probably the only contraindication is initial severe hypertension. With average doses, no toxic effects have occurred.

(8) Mecholyl: This is a rapidly acting drug with powerful side effects. I never give this drug without having available at least grains 1/100 of atropine in a syringe, with a patent needle and a tourniquet on the arm, with a distended vein available for immediate injection of atropine should the blood pressure and pulse drop excessively. As an added precaution, probably the electrocardiogram machine should be attached to the patient. Atropine will quickly counteract the side effects of mecholyl but it must be available. Recently (5) the intranasal administration of mecholyl has been described; the drug is freshly dissolved, a cotton applicator is dipped therein and the applicator placed in one nostril for several seconds. The side effects are less powerful and the results are promising.

(9) Magnesium sulphate: This is given slowly by vein. It is not often used but Scherf (6) has described good results. During administration, it is wise to listen at the apex or check the attached direct writing electrocardiograph machine for toxic arrhythmias, such as frequent ventricular premature systoles, have been described.

(10) Syrup of Ipecac: An old remedy particularly valuable in children, although the vomiting induced may not be appreciated by the patient. It has a wide margin of safety.

All the above drugs and maneuvers act by stimulating the vagus nerve or depressing irritability in the auricular myocardium or both.

Treatment between the attacks:

(1) If rare, no treatment is needed.

(2) If frequent, one may use either quinidine or digitalis often combined with daily sedation (barbiturates or bromides). Despite these drugs, episodes of supraventricular tachycardia may still recur.

6. Auricular Fibrillation:

A completely irregular rhythm is most likely auricular fibrillation; the rate usually varies from 100-200 beats per minute. At the onset or before treatment, the ventricular rate is often faster than the pulse rate constituting a pulse deficit. The irregularity of this arrhythmia is simulated only by frequent premature systoles from different myocardial foci or by marked sinus arrhythmia and the distinction is then made by the electrocardiogram.

Since only two drugs are used in its treatment (including both the paroxysmal and chronic types) it seems to be advantageous to discuss choice of therapy, that is, when digitalis or quinidine should be used:

A. Digitalis should be used:
   a When congestive heart failure is caused by the rapid ventricular rate.
   b When slowing of a rapid ventricular rate is desired rather than abolition of the arrhythmia.
   c When quinidine has been tried and found ineffective.

B. Quinidine should be used:
   a When abolition of the arrythmia is desired, especially after digitalis has slowed the rate without terminating the auricular fibrillation.
   b In a recent paroxysm of short duration, particularly when the heart is normal.
   c When it complicates myocardial infarction, following anaesthesia, after thyroid surgery or febrile disease, and especially when in these circumstances the paroxysmal auricular fibrillation does not stop spontaneously in a few days.

Patients who have mitral stenosis and auricular fibrillation for some years should not be converted to normal sinus rhythm with quinidine (although there is contrary opinion (7), because they usually revert to auricular fibrillation. On the other hand, patients with mitral stenosis—and they are most apt to develop that arrhythmia—who have auricular fibrillation for the first time should be digitalized to slow the rate and then given quinidine. If the patient does not fibrillate again, he is spared taking digitalis for years to come. If he continues to have auricular fibrillation, then he will have to take digitalis.

Whenever congestive heart failure is present

due to the auricular fibrillation, or any other cause, then digitalis is given first for two reasons: decompensation alone will accelerate the heart rate (probably because of the Bainbridge reflex) and quinidine is more effective when the ventricular rate is slow, that is, less than 100 beats per minute.

7. Auricular Flutter:

This is probably the most missed arrhythmia. It can masquerade as sinus tachycardia or supraventricular tachycardia if every auricular beat is conducted to the ventricle (1:1 conduction) or even if only every second beat is conducted to the ventricle (2:1 conduction). It can mimic auricular fibrillation if the auricular beats are conducted to ventricle at irregular rates, that is 1:1, 3:1, 7:1, and so on. Even in the electrocardiogram, the flutter waves may not be detected unless one is suspicious. A good clinical rule is that any arrhythmia, which does not respond to its customarily appropriate therapy should be suspected of being auricular flutter. One can obtain much diagnostic help by taking a precordial lead electrocardiogram both before and after carotid sinus pressure. The bradycardia or cardiac stoppage temporarily produced by carotid pressure will make the flutter waves clear in the EKG.

The treatment of auricular flutter may be outlined thus:

A. Digitalize first. Roughly 50-70% of flutter patients will be converted to auricular fibrillation. When the latter occurs, stop digitalis promptly and about 50% of such patients will spontaneously change back to normal sinus rhythm. This necessitates slowly increasing doses of digitalis and frequent observation each day in order not to miss the time when flutter is changed to fibrillation. Should more digitalis than is needed to effect this change be given, then the patient may remain permanently in auricular fibrillation.

B. Give quinidine to those patients who do not change from flutter to fibrillation with digitalis, or do not revert from fibrillation to normal sinus rhythm spontaneously. 15-25% approximately of this group will change back to normal rhythm.

The change from auricular fibrillation to normal rhythm without medication usually occurs in from a few hours to a few days.

The following case illustrates some of the points mentioned in the therapy of auricular flutter and fibrillation:

A fifty year old white female with rheumatic heart disease and mitral stenosis, whom I have been following for several years, developed for the first time on April 1, 1950, a rapid and irregular heart rate of 140 beats per minute, dyspnea, mild orthpnea, and basal pulmonary rales. The EKG seemed to show auricular fibrillation but carotid sinus pressure caused a temporary slowing of the rate to disclose (well seen in Lead V2) auricular flutter. This was her first episode of congestive heart failure, very likely precipitated by the arrhythmia. She immediately received four tablets or 1.0 mgs. of digoxin orally on April 1, 1950 and two tablets or 0.50 mgs. on April 2, 1950. Cardiac compensation was restored and the flutter converted to auricular fibrillation on April 3, 1950 at a rate of from 98-108 beats per minute. On April 5, 1950, normal sinus rhythm was restored. However, the patient still had fatigue and mild dyspnea and hence one tablet of digoxin was given daily. On April 10, 1950, auricular flutter reappeared. Since the patient had already been digitalized, she received quinidine grains three (0.1 Grams) every four hours day and night. This was increased to grains six (0.2 Grams) on April 12, 1950 and the auricular flutter stopped on April 13, 1950.

Two or three similar episodes of auricular flutter took place in the ensuing month lasting about one day. Since May 1950 she has been taking one tablet of digoxin and one tablet (grains 3) of quinidine four times a day without any recurrence.

The auricular arrhythmias discussed above have special aspects when they complicate myocardial infarction as was pointed out in a previous paper given before the Arizona Medical Association (8).

8. Heart Block:

This is a less common type of arrhythmia. In the past five years I have seen only two cases of complete heart block. First degree heart block, which is common, consists of a prolongation of the P-R interval beyond the normal of 0.21 seconds and may be caused by infections like rheumatic fever and by drugs. Second degree heart block also has a prolonged P-R interval but some beats are not conducted from the s-a node to the a-v node and are "dropped." Third degree heart block consists of a complete disassociation between the auricle and ventricle, due to disease in the a-v node or high up in the interventricular septum, so that the P waves and QRS complexes have no causal rela-

tionship. In third degree heart block the ventricular rate is usually about thirty beats a minute. This alone is not proof of complete heart block, for blocked out, frequent auricular premature beats may simulate this; hence the diagnosis should be checked by the electrocardiogram.

No specific treatment is needed for first and second degree heart block except to remove the underlying cause whenever possible. Third degree heart block requires treatment during the stage of asystole (Stokes-Adams syndrome) or when ventricular arrhythmias arise. During that time the patient may have fainting, dizziness or syncope. Treatment during the attack consists of either subcutaneous adrenalin or paredrine hydrobromide (9). Oral ephedrine may also be given. Patients who have frequent attacks of syncope should receive either oral ephedrine, or better, oral paredrine daily. The main purpose of treatment is to increase the irritability of the ventricular myocardium so that ventricular ejection of blood to the brain may occur.

9. Ventricular Tachycardia:

This arrhythmia is rare in the normal heart and is found almost entirely in the diseased heart or as a complication of myocardial infarction. However, once the diagnosis is properly made, institution of adequate treatment may be life saving. Ventricular tachycardia is most often confused with supraventricular tachycardia. Ventricular tachycardia differs from supraventricular tachycardia chiefly in these respects: the rate is not precisely regular and may vary some especially during respiration. It is not slowed by carotid sinus pressure. In the electrocardiogram, two notable distinguishing features are present: the width of the QRS complex is greater than normal (0.12 seconds or more) and the time interval between two beats can vary by as much as 0.03 seconds, whereas in supraventricular tachycardia the variation is rarely more than 0.01 seconds. This accounts for the slight irregularity heard during auscultation in ventricular tachycardia. If the patient has bundle branch block prior to the onset of this arrhythmia, the width of the QRS complex is not a useful distinguishing feature. Certain clinical symptoms have been described such as: symptoms of palpitation and dyspnea, substernal dull ache or heavy feeling, signs of peripheral circulatory failure or even congestive heart failure, dizziness and fainting, but I have also seen these symptoms with the onset of supraventricular tachycardia.

Treatment consists of:

(1) Pronestyl (Squibb procaine amide) (10): given intravenously at a rate no faster than 1 cc. (100 mgs.) per minute. Frequent blood pressure recordings should be made for this drug does induce hypotension. It is probably also wise to run electrocardiographic tracings during its administration so that the injection may be ceased when the tachycardia stops. During anaesthesia, this hypotensive side effect is less apt to occur, and hence pronestyl may be administered faster. The drug may also be given orally. This is a new drug and has great promise.

(2) Quinidine: Until the advent of procaine amide, this was the most effective drug available when given in full doses. Unlike pronestyl, it is attended by considerable danger when given intravenously and until recently the intramuscular preparations available were not too satisfactory. It is less expensive than procaine amide.

(3) Morphine: A brief report by Sabathie (11) claims success in stopping this arrhythmia. I have not had an opportunity to use it.

(4) Papaverine: Experimentally (12) this has been found effective but clinically there are too few reports regarding its use. The same may be said for atropine.

(5) Potassium acetate: This is worth remembering but probably more work should be done with it.

(6) Digitalis is usually contraindicated: This is of the utmost importance. As mentioned before, digitalis works successfully in the management of supraventricular tachycardia and hence every effort should be made to properly distinguish the two arrythmias.

10. Ventricular Flutter and Fibrillation:

Even though these are usually fatal arrhythmias, reference has been made to the use of intra-arterial blood transfusion and manual massage of the heart as offering some hope in a previous paper before the Arizona Medical Association (13).

I should like to add a final word regarding quinidine, which should have been mentioned before, namely the threat of embolization. Like others I have reviewed the literature in an extensive series of cases and have found that the danger of emboli being loosened as a result of

quinidine usage in auricular flutter or auricular fibrillation has been over-emphasized. Emboli may occur in these arrhythmias with or without quinidine. Furthermore, the problem is somewhat academic today since heparin or dicumarol may readily be given.

It is to be noted that a completed discussion of this subject has not been presented. Some aspects have been passed over solely in the interests of simplicity.

SUGGESTED OUTLINE OF DOSAGES

The following table is drawn up for the sake of succintness and represents what has been found by experience to be useful and successful. The apothecary system can easily be translated into the metric system on the basis of 1 grain = 0.065 Grams.

1. Quinidine:
   a. 3 grains every 3 hours for 24 hours or longer.
   b. 6 grains every 2 hours for 5 doses for 2-4 days.
   c. 3-6 grains every 3 or 4 hours day and night.

   Method b constitutes rapid quinidine administration. The schedule chosen by the clinican will depend, in part, on the speed of action desired for intramuscular use, quinidine lactate or gluconate may be used.
   Watch for toxic effects:
   a. gastro-intestinal: nausea, vomiting, diarrhea.
   b. aural: tinnitus or deafness.
   c. myocardial: ectopic beats, intra-ventricular block, ventricular tachycardia.
2. Digitalis:
   a. Cedilanid (Sandoz, Lanatocide C): 8 cc (1. mg) by vein is a full digitalizing dose or 12 tablets (1 tablet=0.5 mgs) in 48 hours. The daily maintenance dose is 1-3 tablets.
   b. Digitoxin (Digitaline Nativelle): 1.0-1.25 mgs is a full digitalizing dose by vein or 5-6 tablets (1 tablet=0.2 mgs) in 24 hours by mouth. The daily maintenance dose is 0.1-0.2 mgs. (1-2 tablets) by mouth.
   c. Digoxin (Burroughs and Wellcome): 0.75-1.0 mgs is a full digitalizing dose or 4-5 tablets (1 tablet=0.25 mgs) in 24 hours by mouth. The daily maintenance dose is 1-2 tablets.

   Watch for toxic effects:
   a. gastro-intestinal: nausea and/or vomiting.
   b. myocardial: premature beats, first degree a-v block.
   c. eyes: colored or colorless spots or vision.
3. Papaverine:
   a. oral: 1½-3 grains 3 or 4 times a day after meals.
   b. intravenous: 1-3 grains slowly.
4. Procaine amide (Pronestyl, Squibb):
   a. oral: 0.25-0.5 Gm (1-2 capsules) every four to six hours.
   b. intravenous: 200-1000 mgs. slowly, not faster than 100 mgs per minute (1 cc= 100 mgs.).
5. Mecholyl:
   10-25 mgs. given subcutaneously. Have atropine ready.
6. Magnesium sulphate:
   10-15 cc of a 25% solution given slowly by vein.
7. Syrup of ipecac:
   Start with 8 cc. If no effect in 30 minutes, repeat same dose. If no effect in 45 minutes, give 16 cc.
8. In heart block (complete):
   a. adrenalin (1:1000 solution): 0.5-1.0 cc subcutaneously.
   b. ephedrine: grains ⅜ orally 3 times a day.
   c. paredrine hydrobromide: 50 mgs orally three times a day or 20 mgs. intramuscularly.
9. Potassium acetate or chloride: 2 Grams three times a day.

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THE IMPORTANCE OF PREOPERATIVE EVALUATION OF THE PATIENT FOR PROPER PREMEDICATION AND CHOICE OF ANESTHESIA

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1. *Importance of the preoperative visit and evaluation of the patient physically and psychologically.*

EVERY rational patient going to surgery has considerable concern regarding the event. He is interested in those who are going to perform surgery and anesthesia. He of course usually knows the surgeon, but he rarely knows who will give him anesthesia. Not infrequently he is far more concerned about the anesthesia than the surgery. He wants to know what is going to be done; how it is going to be done, is he going to be asleep; how much is it going to hurt or distress him; how is he going to feel afterward. Ordinarily the patient will not ask to see the anesthesiologist if he does not appear, because the patient does not want to seem concerned or apprehensive. But all of us have, I am sure, experienced and appreciated the patient's parting remark at the termination of the preoperative visit: "I am certainly glad you came in; my mind is relieved and now I can get a night's sleep and not worry." The visit has in fact been the beginning of the premedication since it tends to lessen apprehension on the part of the patient. Therefore two important things have been accomplished: physician-patient relation has been established, and the confidence of the patient in the physician has been secured.

Equally important, however, is the factual knowledge the anesthesiologist secures which enables him to formulate a basis for a deliberate, objective evaluation of the best anesthetic or combination of anesthetics to be employed. What are some of those facts that are so useful.

(a) History of previous surgery—how the patient reacted to his surgery and anesthesia and medication.

(b) Any specific fears or interdictions regarding any particular anesthesia.

(c) Any known or suspected allergic reactions to previously administered drugs.

(d) History of any respiratory or circulatory abnormalities or peculiarities. How often does the patient say: "I forgot to tell doctor so-and-so, and probably it isn't important, but as a child I had very severe asthma or shortness of breath,"—or some other danger sign to be considered. You know as well as I that it happens all too often.

The history is of course always reviewed before the visit, because a few well-chosen comments indicating prior knowledge of the patient goes a long way in assuring the patient that you are truly interested in him. After the visit notes are made on the patient's chart indicating any additional history and pertinent facts.

(e) A physical examination is performed, particularly of the respiratory and circulatory systems, and variations from those on the ward, if any, noted. It may have been a week or more since the surgeon last saw the patient, and occasionally things happen in a week.

(f) Of particular importance is pre-knowledge of the patient's quantity of hemoglobin, since a transfusion order is much better accomplished the night before than as an emergency in surgery. The presence of abnormal urine findings may modify the choice of anesthesia and may in certain cases require investigation.

From the above considerations it becomes apparent that we may now begin to consider the problems of satisfactory premedication and evaluate the desirability of a variety of suitable anesthetic agents and methods.

2. *Choice of premedication.*

Premedication rationally prescribed is based on two factors: (a) the patient's history and physical examination, and (b) anesthetic to be employed. One must therefore formulate the anesthesia before writing premedication orders. If the case is an emergency to be done immediately, the employment of intravenous premedica-

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tion should be seriously considered, and in my opinion is ordinarily most satisfactory, particularly if any element of shock is present or anticipated.

Premedication has four desirable ends: (1) to allay apprehension, (2) decrease pain, (3) suppress undesirable reflexes, suppress the production of secretions and reduce oxygen demands, and (4) counteract undesirable side effects of anesthetic agents. Ordinarily these are accomplished by appropriate dosages of: (a) a barbiturate to allay apprehension and decrease metabolism, (b) a narcotic to reduce pain and allay apprehension and further reduce metabolic oxygen requirements, and (c) a belladonna derivative to depress reflexes, and if scopolamine is used, to further allay apprehension and also to provide amnesia.

Which and how much of these drugs is to be used depends upon the age, metabolic rate known or estimated, physical state and allergic history of the patient, and as I have already noted, the anesthetic to be given. Regarding the anesthetic the following is generally true: if a general anesthetic is to be given one usually goes light on those drugs that depress respiration and heavy on those that depress reflexes. If spinal or regional are used, then cortical depression is desirable and reflex depression not so necessary. It should always be remembered that more of any of the premedicating drugs can be added intravenously if necessary to take care of emergency changes in plans or procedures but that an overdose can not be readily combatted. Particular care is necessary in the case of the very young or very old and in case of metabolic abnormality.

The child up to the age of about one year does not require heavy premedication. All that is desirable is a reduction of secretions and reflexes. This can be accomplished with atropine in doses of 1/800 gr. to 1/600 gr. Many anesthetists do not consider premedication of any sort required in this age group.

After one year psychic awareness becomes more acute and reactions of an indeterminable nature are more prone to occur due to changes in environment and because of unfamiliar personnel. Small doses of a rapid acting barbiturate given rectally tend to lessen apprehension and fright. Gr. ½ to 1 Seconal in the form of a suppository may be used 1½ hours before surgery. Atropine grs. 1/600 to 1/300 is given approximately 45 minutes before surgery. This type of premedication may be employed up to approximately the age of five or six.

In very agitated children, or where basal narcosis is required, pentothal in a 10 per cent solution administered in quantities of not more than 0.2 cc. per pound of body weight (4 cc. kg.) by rectum is very satisfactory. This is satisfactory in children up to 50 pounds (23 kg.) since not more than 1 Gm. of drug should be employed.

Avertin (tribromethanol in amylene hydrate) solution may be employed in the very young with considerable success. In these instances perhaps as much as 120 mg./kg. may be needed. This preparation may be given to patients of any weight or age. It is essential that the basal metabolic rate of the patient be known or estimated. Today this drug is used very little except for children, and since the B.M.R. of a child can only be estimated it is best that the Avertin solution be given fractionally, say one-half the calculated dose, then after ten minutes more is added, if required, so that no more is given than is necessary for the desired result.

Both rectal pentothal and Avertin are useful for doing many studies on children not involving surgery as such, X-ray studies, cardiac catheterization, encephalograms, pneumoencephalograms, etc. An enema should always precede the drugs and atropine in approximate dosages also employed.

In children over five years of age I employ demerol in doses of 25 to 50 mg., depending on age and condition, instead of a rectal barbiturate. In addition, scopolamine grs. 1/300 to 1/200 is given instead of atropine. This combination of demerol and scopolamine is very satisfactory in providing a quiet and cooperative child. Just when a child becomes an adult from a premedication point of view is difficult to determine. From about 10 to 15 years of age the metabolic rate is high and a great deal more premedication may be required than might be desirable from an age consideration alone. Seconal or pentobarbital may be employed orally in doses of gr. ¾ to gr. 1½ in older children and should be given 1 to 1½ hours before surgery.

From about 15 years of age to approximately 65—always remembering metabolic rate and physical condition the triad of a barbiturate—a narcotic and a belladonna derivative are used in appropriate doses. Seconal grs. 1½ to 3 or pentobarbital in the same quantities 1½ hours

before surgery with demerol 100 to 150 mg. or morphine gr. 1/6-1/4 and scopolamine gr. 1/100 to 1/150 one hour before surgery are most commonly used. There is one notable exception, and that is in the care of a patient undergoing a Cesarean section. These patients are unpremedicated except for a belladonna derivative if inhalation anesthesia is to be employed. Such patients are given any indicated sedation intravenously after the baby is delivered. It is amazing how many women will undergo the complete surgery of a Cesarean under spinal anesthesia totally unpremedicated and unsedated with the proper encouragement and assurances of the anesthetist.

When a patient reaches the age of approximately 65, the dosage of premedicating drugs should be reduced. The metabolic rates of these patients are low, their vascular respiratory reserve is reduced as a general rule, and frequently even small doses of sedatives and narcotics produce an undesirable depression. In these patients barbiturate dosage should be reduced to seconal gr. ¾ (or equivalent dosage of other preparations). Demerol is less depressing than is morphine and is substituted for morphine for all patients in this age group who are not suffering from acute traumatic pain.

Atropine is the belladonna derivative used for these patients since in this age group, as with the very young, scopolamine causes excessive restlessness in many instances. Demerol is 25 to 75 mg. doses and atropine gr. 1/200 are most often employed.

In emergency cases premedication can be given intravenously; in fact, because of the certainty of the absorption of the dose and the predictability of the time of the effects, many anesthesiologists prefer to give all premedication by this route. Morphine and demerol have their maximal depressing effects in less than ten minutes after intravenous administration. Analgesia is about maximal in fifteen minutes. Pentobarbital may also be given intravenously to the desired degree of narcosis very satisfactorily. The amounts of drugs given by this route are reduced over that given intramuscularly except for the belladonna fraction whose dosage remains the same.

The practice of "stealing thyroids" with basal narcosis with Avertin has almost disappeared and in fact the use of Avertin for any purpose for adults is very rare. The reason for this is the unpredictability of the degree of both respiratory and circulatory depression and duration of narcosis with Avertin. The more satisfactory intravenous sedation with pentothal or surital (thioanalog of seconal) has almost entirely replaced Avertin for basal narcosis in the adult when such is required.

There are other drugs that may be used for premedication or basal sedation in special instances.

Intravenous alcohol in 5 or 10 per cent concentration in glucose may be used to stabilize alcoholics. Paralydehyde or choral hydrate may be used in cases of acute mania or other allergic reaction to the usual premedication drug.

The premedication of brain surgery cases presents no serious problem today. Demerol, apparently, does not tend to cause an increase of intracranial pressure in therapeutically effective doses as morphine is said to do.

Severe toxic thyroid cases must be heavily premedicated frequently but can be brought to surgery with pentothal intravenously.

In cases where shock is present it is almost mandatory to give premedication intravenously to assure effect, since there may be a depot of drug in the tissues due to failing circulation. Later a severe depression may result as the circulation improves and the depot of drug is released into the circulation.

3. *Choice of anesthesia.*

The most commonly employed anesthesia for infants and children is open drop ether, or ether insufflation with air as the vehicle. Ether as an agent is well tolerated but the method of administration can be improved by supplementing the ether-air mixture with oxygen in the case of the open drop technique or by substituting oxygen for air in the insufflation techniques. An ether-air anesthetic always produces a reduction in the inspired oxygen and consequently in a reduction of the alveolar oxygen tension by a fraction proportioned to the concentration of ether vapor according to Dalton's law. While it is true ether causes stimulation of respiration, it is also very probable that part of the stimulation in the case of ether-air anesthesia is the result of hypoxia.

Ether anesthesia for children is usually induced with Divinyl ether or ethyl chloride because of their rapid action. Oxygen should also be used with these drugs because there is no doubt that the convulsions occasionally seen with Divinyl ether and the cardiac arrests re-

ported from ethyl chloride are hypoxic in origin.

Rectal pentothal plus nitrous oxide-oxygen—the oxygen percentage kept above 20 volume per cent—can be employed for infants and children with considerable satisfaction in many instances, particularly in orthopedic surgery, neurosurgery, and plastic surgery. Rectal pentothal plus topical anesthesia can be used for eye surgery with success.

Cyclopropane is mandatory for the induction of cases with Tetrology of Fallot for the Blalock operation since it allows a very rapid induction with high oxygen concentration of the inspired gases.

When properly premedicated, the use of spinal and regional anesthesia for surgery on children is entirely practical. Great care must be exercised not to use toxic quantities of drug or excessive concentrations. One-half per cent procaine solutions for regional is adequate. One mg. of procaine for every 1 kg. of body weight is adequate for spinal, and the spinal drug should be diluted to not more than a 2 per cent solution with spinal fluid before injection.

Because of the relatively high metabolic rate of children no hypoxia should be permitted. Endotracheal anesthesia may be safely employed to insure the airway provided care is taken to prevent laryngeal edema from too large a tube or from trauma as a result of rough technique. If a circle anesthetic gas machine is employed it is desirable to assist inspiration slightly by gentle rhythmic compression of the breathing bag to reduce respiratory effort of the small patient to a minimum, since labored respiration for any period of time may well result in collapse of respiration and circulation.

During prolonged anesthesia careful watch should be kept on the rectal temperature alterations in either direction from normal and be corrected.

The choice of anesthesia for adults depends upon many factors controlled by the patient, surgeon, or anesthetist. The patient is, of course, the most important control. Generally most patients will accept whatever anesthetic their surgeon and anesthetist feel is best. Under no circumstances should a patient be given an anesthetic he does not want, particularly a spinal anesthetic, unless it is absolutely necessary.

The majority of patients are perfectly able to take any of a variety of anesthetics, but as has been pointed out, it is essential that a physiological and physical assay be made before any patient is anesthetized by any agent and method.

The majority of surgeons will accept the anesthetic chosen by the anesthetist. The anesthetist should, however, always try to choose the type of anesthesia most suited to the surgeon if there is no reason why such can not be employed. In other words, the choice should be a cooperative effort. If for any reason there is a difference of opinion this can almost always be resolved by a review of the patient and his record by the surgeon and anesthetist together.

It is the opinion of most anesthesiologists that spinal anesthesia should not be used for the shocked patient or one who may go into shock. Spinal anesthesia is also best avoided in patients with concealed hemorrhage such as ruptured ectopic pregnancies.

Regional anesthesia is ideal for the patient in shock, if he must receive surgery. Cyclopropane is the anesthetic of second choice. Intravenous morphine or demerol and nitrous oxide-oxygen may be employed, using a minimum of pentothal. Deep ether anesthesia is to be avoided.

A word of caution regarding general anesthesia in the emergency case is in order. Try to ascertain how long before injury or the onset of the acute process the patient has had food. Invariably gastric function stops after injury or with severe acute pain. It is very important that the stomach be emptied if undigested food is reasonably suspected to be present. More tragedies have occurred from the vomiting of food by emergency patients during some phase of an inhalation anesthesic with aspiration into the lungs of an undetermined quantity of the material than from any other factor due to anesthesia. It may be unkind to subject the injured or acutely ill patient with a full stomach to gastric lavage or emesis, but in actual fact he will invariably vomit sooner or later and it is better that it be done under controlled conditions.

Theoretically, the anesthetist should be expert with all techniques. This is not always the case for a variety of reasons. The inexperienced anesthetist should not attempt new or unfamiliar methods without experienced guidance. This he owes to the patient.

The aged patient, as the very young patient, requires special consideration. The aged patient has lost a very large part of the respiratory and vascular adaptability that is possessed by the patient of less years. It is therefore extremely

important that respiratory and vascular depression be avoided. In this age group utilization of multiple agents, avoiding the undesirable characteristics and taking advantage of the desirable ones, is best employed. Regional anesthesia with light sedation can be used for many procedures. Nitrous oxide-oxygen and very small doses of demerol intravenously provide excellent anesthesia for many patients. Spinal anesthesia, if a unilateral type can be used, is very satisfactory, particularly for fractured hips. Deep anesthesia should be avoided where possible. Small doses of curare can be employed to secure adequate relaxation with a minimum of undesirable depression, with very light general anesthesia.

Certain principles, then, should be observed in the choice of anesthesia, namely:

(a) There is no such thing as choosing anesthesia for a particular type of surgery—anesthesia is chosen for the patient only. It is true that most patients can take any number of a variety of anesthetics without any noticeable difference, and in these the most convenient anesthetic for the surgeon should be employed, but in certain cases no compromise should be made.

(b) No patient should be given an anesthetic he does not want or is afraid of. This is particularly true of spinal anesthesia. Most patients want to be asleep during surgery and frequently a spinal will be accepted if the patient is assured he will be asleep.

(c) If a patient states in all seriousness he will never wake up if he is given a general anesthetic and that he is going to die on the table, cancel the surgery or at least decline the responsibility of giving the anesthetic, because the patient is right in about 95 per cent of the cases.

(d) The facts must be faced that all anesthetics are potent protoplasmic poisons. They constitute some of the most potent drugs in the pharmacopia and it is indeed unwise to take lightly the responsibility for their administration.

Conclusion.

It is not good anesthesia merely to have a patient survive an anesthetic; fortunately most patients will survive no matter how poorly chosen or administered is the anesthesia. Failure to properly evaluate the importance of anesthesia in the past is why we are now struggling to revive this branch of medicine from the status of a technical maneuver to which it had degenerated. The function of an anesthesiologist is to so choose and administer an anesthetic that the patient is no worse off for having received it and, if possible, as is often the case, by fulfilling his corollary duties of providing adequate hydration, electrolytes, and blood replacement, that the patient is actually improved after surgery over his preoperative condition.

An anesthetic well given therefore starts with an adequate preoperative evaluation of the patient derived from personal contact with him, with a review of his history and a physical examination, is continued by intelligent preoperative medication, and terminated by finally administering the actual surgical anesthesia.



THE SELECTION OF ANESTHESIA FOR THE CARDIAC PATIENT*

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The selection of anesthesia for patients with cardiac disease has always presented a problem. Many of these patients are geriatric subjects to whom a major operative procedure plus the trauma of anesthesia may lead to an unfavorable outcome[1]. We do not delude ourselves that anesthesia is not trauma.

In the modern concept of anesthesia it is not considered enough merely to keep the patient alive on the operating table and to get him back to his room. The anesthetic should be so chosen and conducted as to give the patient the best possible chance of recovery. The anesthetic agent and technique should be the one most physiologically sound for the individual patient. This choice is arrived at by taking into consideration the pharmacology of the agents used and the physiological state of the patient at the time of operation. Deaths which occur in the first post-operative days may be due to the way in which the anesthesia was conducted. The patient may be so weakened by the bad effects of the anesthesia that his downhill course is accentuated and ends in his death[1].

In minor surgery where little or no relaxation is required the choice of anesthesia is local infiltration or a regional block. This produces the least metabolic effect upon the patient. When this is not practical, he may be given small doses of pentothal as a basal anesthesia supplemented with nitrous oxide, and oxygen in large concentration to provide analgesia. He may receive a regional block for analgesia and pentothal in small doses to increase his comfort. Oxygen should always be given. This type of anesthesia is hardly sufficient for some types of intra-abdominal surgery. There remains for these cases inhalation or spinal anesthesia.

The types of heart diseases most commonly encountered are coronary artery insufficiency, cardiac decompensation and hypertension.

CORONARY INSUFFICIENCY

The patient with coronary artery disease is usually apprehensive about his heart, since he has had painful attacks. These people must receive adequate premedication to allay their fears but they must not be over sedated. The doses of medicine must be individualized after separate evaluation of each case. Routine orders should never be given for these patients. If the patient is excessively nervous he may be put to sleep with some pentothal before he enters the operating room.

Four chief dangers are to be avoided in patients with real or potential coronary insufficiency

(1) Anoxia of the cardiac muscle must be prevented during a fall of the diastolic blood pressure since the diastolic pressure level determines the coronary artery blood flow.

(2) A high oxygen concentration must be maintained.

(3) The muscular exertion of the excitement stage must be avoided because of the possibility of coronary spasm with occlusion and myocardial infarction. This may be overcome by the use of rapid acting agents such as pentothal for induction.

(4) Avoid an overload to the circulation due to the administration of large amounts of fluids[1].

Spinal anesthesia is contraindicated in most cardiac cases because of the tendency to produce a drop in pressure. Vasopressor drugs and oxygen may bring the pressure back but a severe drop of the blood pressure may produce disastrous results before it is remedied.

For intra-abdominal surgery there are several method of obtaining relaxation while fulling the four conditions just mentioned.

(1) One excellent method of doing this is with an intercostal block done while the patient is asleep with pentothal oxygen, or pentothal—nitrous-oxide-oxygen. If the surgery is in the lower abdomen a field block may be done or the muscle infiltrated with one percent procain. This may completely eliminate the necessity for the use of curare or ether.

(2) The blocks or infiltrations may also be used with pentothal induction and cyclopropane. This produces relaxation and eliminates the need for deeper anesthesia.

(3) Ether in small quantities added to cyclopropane after pentothal induction is very useful. It provides high oxygen concentration, a pleasant quick induction, and the ether stabilizes the

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heart rhythm and provides relaxation. The patient will be unaware that he has had any ether because the quantities used are small.

For any of these combinations a small amount of curare may be used. I should like to add here a word of caution about the use of curare. When adequate relaxation can be obtained by other means such as infiltration, block, or the addition of small amounts of ether, the use of curare should be very limited. It is important to maintain the mechanics of the respiration to produce the proper filling of the right heart. The proper filling of the heart is necessary to maintain the cardiac output, coronary circulation and blood pressure. During inspiration, by the elevation of the ribs and descent of the diaphragm a negative pressure is created inside the chest, which is transmitted to the right heart. This negative pressure plays a very important part in cardiac filling, therefore on the cardiac output and the maintenance of blood pressure. Except when dealing with a very flabby individual, enough curare to produce abdominal relaxation will paralyze the intercostal muscles. At least half of the negative pressure produced by the inspiratory movements will be lost. The chest may be inflated by pressure on the breathing bag of the gas machine to provide adequate ventilation but the positive pressure required to inflate the chest is also transmitted to the right heart and prevents the adequate filling, to some degree. This degree is insignificant in the normal or near normal individual but may have a definite weakening effect upon the patient with coronary artery insufficiency or hypertension.

CARDIAC DECOMPENSATION

In dealing with cardiac decompensation we are concerned chiefly with pulmonary edema. The etiology is controversial. The problem of the anesthesiologist is to alleviate the symptoms of pulmonary edema or avoid aggravation of those already present[1]. In this group are the younger patients of the rheumatic heart disease group. These patients have a history of cardiac decompensation or signs and symptoms of its presence. Those who show findings which suggest that an overload to the circulatory system might precipitate decompensation must be included in this category. Dyspnea on exertion, ankle edema and orthopnea are the most prominent symptoms and basal rales may be found on ausculation[1].

The choice of anesthesia in this group of patients is spinal. This conclusion is based upon the work of Sarnoff and Farr[2] in using spinal anesthesia for the treatment of pulmonary edema in cardiac decompensation.

These investigators chose patients admitted to the hospital in severe cardiac failure with pulmonary edema as the predominant symptom causing distress. Spinal anesthesia was given to cause peripheral dilatation of blood vessels and muscular relaxation in the caudad portion of the body. Some of the blood is trapped there, reducing the circulating blood volume and load on the heart. The anesthesia acts as a bloodless phlebotomy in the same manner as applying tourniquets to the extremities. There is a reduction in the venous return to the heart which aids in correction of the imbalance between the right and left heart. This facilitates return of fluid in the lungs to the general circulation and relieves the pulmonary congestion. Other accepted medical treatment was carried out at the same time[1-2].

When surgery is to be done below the diaphragm spinal anesthesia is a good choice. If the operation is to be a prolonged one the fractional technique may be carried out.

In the patient who presents pulmonary edema, general anesthesia of sufficient depth to provide relaxation may precipitate severe cardiac failure with marked increase in the pulmonary edema. In some cases though the patient may go through surgery and the operative day with no increase in symptoms or physical findings, the heart failure may begin to manifest itself and progress during the first and second post operative days. Anesthesia can still be considered a contributing factor here[1].

If the operation is elective and the patient presents some signs of heart failure he should be digitalized before surgery is attempted. In the opinion of some internists, strictly elective surgery should not be carried out on patients who have a history of cardiac failure. The hazard is great and should be done only as an emergency arises or to prevent an emergency.

As soon as a spinal anesthesia has been given oxygen should be administered in high concentration preferably thru the gas machine where respiratory movements may be closely observed in the breathing bag. Oxygen should be continued through the post operative period as long as heart failure or its imminence is present.

It is essential to use, routinely, a vasopressor drug to maintain the blood pressure. Since neo-

synephrin produces a bradycardia, does not cause arrhythmia, and increases the stroke volume it is a good choice for this purpose. Ephedrine is also acceptable. Pitressin and pituitrin are especially to be avoided since they are powerful coronary vasoconstrictors. Coronary vasoconstriction leads quickly to myocardial anoxia, cardiac dilation, fall in blood pressure and even sudden death[3-4].

An intravenous solution of dextrose and water should be started before the operative procedure but it should drip very slowly. This is mainly to assure a readily accessible vein for the administration of intravenous medication or blood should the occasion arise.

HYPERTENSION

Patients with hypertension are treated much the same as those with coronary artery insufficiency. The main difference in the treatment of the hypertensives is consideration of the elevation of the diastolic blood pressure. As previously stated it is upon the maintenance of the diastolic pressure that the coronary arteries depend for their blood supply. A severe and abrupt fall in diastolic blood pressure may so embarrass the heart through anoxia that it will dilate and cease to function.

Spinal anesthesia is definitely contraindicated for any intraabdominal procedure in the group with the high diastolic pressure. Where the anesthesia may be limited to the saddle areas it may safely be used, since this will produce a negligible drop in the blood pressure. If a saddle block is used it is wise to use 100% oxygen during the procedure[1] and it is also wise to consider a general anesthetic of some type.

Where relaxation is required for major procedures cycloprepane-oxygen with small amounts of ether will produce less systemic change than any of the other inhalation agents. If the patient has an arrhythmia or a history of an arrhythmia then another choice should be made. An induction with pentothal to prevent the excitement stage, followed by the careful addition of ether and oxygen through the gas machine is an excellent choice. By this combination, carbon dioxide absorption may be carried out and a much higher percentage of oxygen may be used than in the nitrous-pentothal-curare sequence. In my opinion ether-oxygen with pentothal induction is the anesthesia of choice for the patient with hypertension who has an arrhythmia where relaxation is very important. Ether must be very carefully added after a pentothal induction to prevent a laryngospasm. The patient must be lightly premedicated. This means no preoperative barbiturate, and if the patient is over 60 years of age no more than ⅛ grain of morphine and an appropriate dose of atropine or scopalamine. This combination should be given at least one hour before the induction of the anesthesia so that it may reach it maximal depressing effect upon the respiratory center before induction of the anesthesia. Many times the elderly patient will need no more than 1/12 grain of morphine or its equivalent in Demeral of 50 milligrams. If the patient's age is in the 70's or 80's codein may be substituted for morphine. These patients should be awake and moving as soon as possible after the surgery and if they have had barbiturates, and a dose of morphine which is large considering their metabolic state, they are far too depressed.

It is possible to use pentothal, nitrous-oxide-oxygen-curare but caution must be taken not to depress the respirations with the curare. It is better to use a block or infiltration with procain and then a very little curare if more relaxation is needed.

The only time open drop ether is indicated is in an emergency when a trained anesthetist is not available. If ether must be given by an inexperienced person under the direction of the surgeon, oxygen should also be given by nasal catheter or by direct flow under the ether mask and it should be started with the induction.

In summary—we must remember that cardiac cases during anesthesia (1) do not tolerate blood pressure drops and everything must be done to maintain the blood pressure. (2) A high oxygen concentration must be continued. (3) They must not be given drugs which will render the myocardium anoxic. (4) In so far as is possible the normal mechanics of respiration must be maintained.

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THE DIFFERENTIAL DIAGNOSIS OF HEMORRHAGE FROM THE UPPER GASTRO-INTESTINAL TRACT

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One of the most common sites of symptomatic bleeding is the gastrointestinal tract. Hemorrhage from this source is manifest by hematemesis, the vomiting or regurgitation of blood, or by melena, which is the discharge of black modified blood from the bowel.

The exact frequency of hemorrhage from the gastrointestinal tract can, of course, only be surmised. Many persons will pass black stools and some few will actually vomit appreciable amounts of blood without seeking medical opinion. Some worthwhile statistics on the frequency and etiology of gastrointestinal hemorrhage have been reported, however, from larger teaching hospitals where such cases are more likely to be concentrated.

Thompson, et al.,[1-2] recently reported on 557 patients admitted to the Los Angeles General Hospital in one calendar year for bleeding from the gastrointestinal tract. The number of cases is not sufficiently large that each possible cause of hemorrhage is represented, but it does give some idea of the magnitude of the problem. This study was reported in two separate papers, one on hematemesis, and the other on melena.

Wilbur and Rivers[3] reviewed the records of 668 patients admitted to the Mayo Clinic with a history of vomiting blood. It was found that in 56.6 per cent of the cases the hematemesis was caused by duodenal ulcer. Welch[4] recently reported on the source of bleeding in 363 cases of massive acute hemorrhage from the upper part of the gastrointestinal tract observed at Massachusetts General Hospital from 1938 to 1947.

Any attempt to classify gastrointestinal bleeding on the basis of the site of the lesion must be founded on a knowledge of anatomic and pathologic abnormalities encountered at various levels of the alimentary canal. This can be divided roughly into three segments: from the pharynx to the ligament of Treitz, from the ligament of Treitz to the ileocecal valve, and from the ileocecal valve to the anus.[5] In this discussion we are interested only in bleeding from the first two divisions.

The lesion producing hematemesis generally is situated proximal to the ligament of Treitz, while the lesion producing melena probably is located above the midpoint of the small intestine. Bleeding below this point is usually evidenced by red blood in the stools.

There are exceptions to these rules, however:

1. Even with esophageal bleeding the blood may not be vomited and hemorrhage may be suspected only because of tarry stools.

2. Although melena is the rule in upper gastrointestinal tract bleeding, it must not be forgotten that feces containing currant jelly-like, deep reddish material may be encountered if the hemorrhage is brisk and the peristaltic rate rapid.

3. Bleeding distal to the ligament of Treitz, although usually manifest by melena, may, in the presence of intestinal obstruction with reversal of the intestinal peristaltic gradient, produce hematemesis.

The typical tarry stool is viscid, shiny, and black. Clinically it must be differentiated from the black discoloration of feces which follows the oral administration of iron, bismuth, or charcoal, or from the dull red stool which sometimes appears after the ingestion of highly colored foods. Chemical tests are of assistance in making the distinction. Daniel and Egan[6] have demonstrated experimentally that as little as 50cc. of blood placed in the stomach may cause a tarry stool.

Consider now the causes of upper gastrointestinal hemorrhage. Esophageal bleeding is due either to varices or to cancer in most cases. In the Los Angeles County Hospital study varices accounted for 32.2 per cent of the cases of hematemesis and 9.2 per cent of the cases of melena. The presence of esophageal varices secondary to portal hypertension may be suspected from the observation of jaundice, spider angiomata, ascites, or the finding of a palpable liver or spleen. A history of chronic alcoholism in some of these patients may be significant. Carcinoma, the commonest malignant tumor of the esophagus, usually manifests itself by dysphagia, epigastric pain, anorexia, weight loss, and inanition. If

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ulceration is present, however, hemorrhage may occur.

Peptic ulcer is the commonest cause of massive hemorrhage from the upper gastrointestinal tract. According to Bockus[7] approximately 75 per cent of all massive hemorrhage into the alimentary tract is caused by peptic ulcer. The great majority are located in the first portion of the duodenum.

The history of active ulcer symptoms preceding the hemorrhage with the sudden cessation of all pain after the onset of bleeding justifies the tentative diagnosis of peptic ulcer.[8] A previous diagnosis of peptic ulcer or the history of chronic intermittent ulcer distress over a period of years with recurrence of discomfort shortly before the onset of hemorrhage indicates a peptic ulcer as the probable source of hemorrhage.

Objective evidence of peptic ulcer obtained by previous roentgenologic examination is valuable, not only in establishing the diagnosis, but in localizing the lesion to the exact site in the stomach or duodenum.

Approximately 25 per cent of patients, however, deny the existence of ulcer symptoms prior to the hemorrhage. This is particularly true in the older age group. Not uncommonly the patient presents no history or roentgenologic evidence of a previous peptic ulcer, and studies performed in one-fourth of the cases of massive hemorrhage within three weeks of the onset of the hemorrhage fail to establish the cause and site of the bleeding.

Cancer of the stomach is not a common cause of massive gastric hemorrhage and usually occurs in the late stages of an ulcerating carcinoma. Evidence of weight loss and the finding of an abdominal mass suggest the diagnosis. Polyps of the stomach and other benign tumors may cause massive hemorrhage without warning. The diagnosis may be established by roentgenologic or gastroscopic examination.

Severe hemorrhage from the stomach may originate from a hypertrophic gastritis, an erosive hemorrhagic gastritis, or superficial gastric ulcerations. Fairlie has written a recent article in which he reviews four cases of gross hemorrhage due to chronic gastritis. These were of the hypertrophic and superficial types. Gross hemorrhage as a result of atrophic gastritis is described but is certainly far less common than that from the hypertrophic and superficial types.

Hematemesis or melena in an elderly stout woman suggests a hiatus hernia, particularly in the absence of typical ulcer symptoms. The hemorrhage is initiated in these instances by gastritic erosions, ulcerations, or severe hypertrophic gastritis within the herniated pouch.

Hodes and Edeiken[9] recently published a comprehensive study on roentgen manifestations of small intestinal bleeding. Of the 161 patients in this study there were seven patients with non-Meckelinian diverticulae. These are found most often in the second portion of the duodenum, less commonly in the jejunum, and least commonly in the ileum. Usually found penetrating the muscular layers of the small intestine at points where blood vessels enter, it often contains ectopic pancreatic tissue. It is host to all the complications found in Meckel's diverticulum and bleeds with equal severity. Benign and malignant tumors, tuberculous and non-tuberculous enteritis, and jejunal and ileal ulcers are less common causes of intestinal bleeding.

Of the latter small bowel lesions let me emphasize only three: regional enteritis, nonsclerosing ileitis, and, of the malignant tumors, lymphosarcoma.

As Hodes and Edeiken pointed out regional enteritis is characterized by a non-specific sclerosing inflammatory process that involves the terminal ileum, ileocecal region, or any portion of the small intestine. It often is associated with a narrow lumen, hypertrophy of the muscularis propria, mucosal erosions or ulcerations, and fistulae. The radiological findings are characteristic.

The nonsclerosing affection, or ileitis, occurs more commonly in girls early in life. Pain in the lower right portion of the abdomen, often mistaken for appendicitis, is the outstanding symptom. Radiological findings are right lower quadrant tenderness and an irregularity of the mucosa of the terminal ileum sometimes referred to as a cobblestone ileum.

The location of preference for lymphosarcoma is the terminal ileum possibly because of its abundant lymphoid structure. Yet these lesions are not uncommon higher in the small bowel involving the duodenum and proximal jejunum. The result of the disease on the bowel is peritonitis, adhesions, obstructions, necrosis, and hemorrhage.

Meckel's diverticulum is responsible for many serious and unrecognized abdominal complications. As a rule it is located on the antimesenteric

border of the ileum 30 to 90 cm. above the ileocecal valve. It is twice as common in males as in females and occurs in about 2 per cent of the population. Hemorrhage is one of the most common symptoms of diverticulum. It occurs more often in persons under 15 years of age and especially in infants under 2 years. The bleeding is attributable to the ulcer, erosion, and inflammation that develops in the heterotopic tissue within the diverticulum. Usually the ulcer may be found at the junction of the heterotopic mucosa and the normal mucosa.

Blood dyscrasias should be suspected whenever multiple sources of hemorrhage are observed or splenomegaly of undetermined origin is found. Thrombocytopenic and non-thrombocytopenic purpura, splenic anemia, and hemophilia are possibilities.

Among the intrinsic causes of bleeding from the small bowel are vascular diseases, such as thrombosis of mesenteric arteries and veins, rupture of arteriosclerotic blood vessels, or peptic erosions secondary to endarteritis.

Finally foreign bodies, allergies, and drug idiosyncrasies may be causes for a rare and obscure case of upper gastrointestinal hemorrhage.

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Editorials

PRESENT STATUS IN THE TREATMENT OF TUBERCULOSIS OF BONES AND JOINTS

W. A. BISHOP, JR., M.D.
Phoenix, Arizona

Tuberculosis of the bones and joints is one of the oldest phenomena of which there is record in the medical archives. Through the ages, there has been a slow evolution in the treatment of this condition. Originally, the major medical centers over the world considered that tuberculosis of bones and joints should be treated conservatively. Immobilization over a long period of time with eventual ankylosis of the joint or healing during the wearing of a brace was accepted as the treatment of choice until the era of asepsis.

Soon after it became possible to operate upon bones and joints—particularly diseased bones and joints—without great danger of infection, there were enthusiasts for early operation to secure an arthrodesis in all cases of tuberculosis.

During the past twenty-five or thirty years, there has been a tendency for the pendulum to swing to the more conservative and then to the more radical form of treatment. It has been the consensus of most orthopedic surgeons during the past ten or fifteen years, that the judicious use of conservative treatment until the condition was quiescent, prior to surgical intervention, would give the best results in the greatest number of patients.

These patients were treated much as any patient with tuberculosis, by rest and immobilization of the part until the patient's general condition improved and until the reaction in the joint was quiescent. A surgical arthrodesis was then attempted with the ultimate goal of a bony ankylosis of the joint to eliminate motion and

consequently to permit relatively normal activity without the great danger of repeated flare-ups.

More recently, Streptomycin has been used over a period of time and produces dramatic results as compared with the older conservative methods, particularly when applied to conditions with draining sinuses and secondary infection. By a combination of Streptomycin and whatever other antibiotic that would be indicated for the contaminating organism present, most of these conditions clear relatively rapidly, and permit surgical intervention at a much earlier stage than has been possible heretofor.

It is too early in the history of Streptomycin, and some of the other drugs of promise, to be able to say if the condition of tuberculosis of bones and joints will lend itself to chemotherapy without other measures. At this writing, it would appear that chemotherapy is merely an adjunct in the treatment of the disease.

Through evolution in the treatment of chest conditions, there has gradually evolved a method by which patients with localized, far advanced disease are subjected to surgery in the form of lobectomy or other measures for eradication and elimination of the disease process. All too frequently, we see patients with chronic draining sinuses of many years duration following unsuccessful treatment of tuberculous infections of the bones and joints. One should not lose sight of the fact that eradication of the focus is often indicated in these conditions, both as a measure of permitting physical rehabilitation, but also as a means of preventing amyloidosis. An amputation should always be considered in chronic tuberculous bone and joint conditions which have not responded to a reasonable period of less radical treatment.

In conclusion, it may be stated that the treatment of tuberculosis of the bones and joints has made gradual progress through the decades with swinging from ultra conservative prior to the period of asepsis in surgery, to marked enthusiasm for early surgical treatment. This was followed by a swinging back to a more conservative approach, with surgical intervention only after the patient's general condition, and the local infection had shown improvement. Since Streptomycin and the other promising drugs have been available, many patients with draining sinuses have been cleared up, and surgical intervention has been possible in patients in which all previously known therapeutic measures had failed.

Extirpation of the lesion by amputation is necessary in a certain number of patients to eradicate the disease process from the patient when that procedure alone offers hopes for rehabilitation of the more chronic conditions.

ARIZONA MEDICAL PROBLEMS

Consultation and Case-Analysis

ARIZONA MEDICINE again presents an unsolved and difficult case from the practice of Arizona physicians, with the Case-Analysis and comments of a specially-chosen and nationally-known Consultant.

Any physician who has an undiagnosed case which has defied other methods of solution may send it for consideration. The case should be completely worked up, but an editor will help compose the report. Whenever the need for an answer is urgent, the Consultant's reply will be sent direct to the submitting physician, before publication.

Please send communications and data to Dr. W. H. Oatway, Jr., 123 S. Stone Avenue, Tucson, Arizona, or care of The Editor, Arizona Medicine.

The *current case* represents a common accident in Arizona. It is a probable medical and surgical case with orthopoedic and thoracic aspects.

The *consultant* is Dr. Hobart A. Reimann, Professor of Medicine at The Jefferson Medical College of Philadelphia.

Dr. Reimann is ideally qualified to handle this case-analysis. His interests are very diverse, and he has published interesting papers on widely separated subjects.

As a possible connection to the case at hand, he is the author of a book on pneumonia, of several sections in *Cecil's 'Textbook of Medicine,'* including Circulatory Disturbances of the Lung, Pulmonary Edema, Pulmonary Hemorrhages, Pulmonary Concussion, Pulmonary Infarction, Atelectasis, Abscess, etc., and author of a four-volume set on treatment in internal medicine.

CASE NUMBER XXV

(*The following history is restricted because of language difficulties, the short duration of the illness, and the patient's serious condition.*)

The patient was *a white male Spanish-American* who appeared younger than his 72 *years of age.* He was a ranch-foreman, and led a very active life. He was said to have been well until his recent accident.

The patient was thrown by a horse, and rolled-on. He was carried to his home on the edge of town, put to bed, and a surgeon was called.

Examination showed *a crushing of the right side of the chest,* abrasions of the skin, but no other gross injuries. Because of shock and pain he was kept in bed at home *with his chest widely strapped* with adhesive-tape. He refused hospitalization.

X-rays of the chest were made at the bedside after 4 days, and they showed that six of the ribs on the right (3rd to 9th) had one or more fractures laterally. Other details were not clear.

On the sixth day after the injury the patient's cough and pain were increased, and he began to have *blood-streaked sputum,* a more severe dyspnea, grunting respirations, and a pain in the *left* lateral chest area.

The following evening (at the end of a week) the pain on the left side became more severe, and *he was seen in consultation.* He was quite cyanotic, in considerable respiratory distress, but the streaking of the sputum had ceased. His temperature was 100.2 deg. (oral), his pulse was 120/min. with occasional skipped beats, and the respiratory rate was 30/min. Rhonchi could be heard (thru the adhesive-tape) in each lung; there were possible signs of a pneumothorax on the right, with distant breath sounds; and the mediastinum seemed shifted to the left. His blood pressure was 100/70. The heart sounds could be heard only indistinctly. The abdomen and legs were normal.

He was given morphine. It was suggested that the tape be removed. A family council was to be held to urge hospitalization.

Early the following morning he had a sudden *sweat,* had the appearance of *shock,* and became *stuporous.* He was then taken to the hospital.

At the hospital he continued to be stuporous; his breathing was noisy, labored, and of a Cheyne-Stokes type; he occasionally coughed, choked, and raised profuse bright red sputum; and he perspired profusely, with a cold face and warm extremities. The pulse was 120-134, respirations 18-20, and temperature dropped from 100.8 to 99 deg. during the first day.

There was a subcutaneous emphysema of the right lateral chest, and the area was grossly discolored and swollen. There were moist coarse and medium rales throughout both lung fields, though they were distant on the right.

An X-ray at the bedside showed nothing unusual about the heart or mediastinum. There was *emphysema of the right chest wall, but no pneumothorax.* The multiple, complete, ununited fractures were as previously noted. *There was a generalized soft patchy accentuation of the trunks in both lung fields* which suggested a 'pulmonary edema or hypostatic pneumonia' to the radiologist. There was also a slightly greater density at the left base, suggesting pleural effusion.

A blood count included 12 grams of hemoglobin, 3,680,000 R.B.C., 15,400 W.B.C., 90% P.M.N., and 10% lymphocytes. The urine was noted to be very concentrated, with 1.034 sp.gr., a trace of albumen, a few W.B.C. and R.B.C. per H.P.F.

Therapy consisted of oxygen by nasal catheter, coramine I. M., cedilanid I. V., and intravenous hypertonic glucose. Penicillin was not started until the temperature began to rise.

The patient roused somewhat during the next 12 hours, but he remained weak and restless. His pulse was thready and slightly irregular at 120 to 130/min. Expectoration of clotted blood and purulent sputum continued, and the respirations became regular but shallow. The *temperature* began a regular progressive rise which eventually reached 107 deg. The blood pressure dropped from 104/66 to 90/70 to 60/40. In spite of the continued regulated use of coramine, cedilanid, and finally adrenalin, he expired quietly 36 hours after entering the hospital. *A necropsy was not allowed.*

The diagnosis was not clear, and an analysis has been requested. It would seem that he either had a condition which would not respond, or else that the right things were not done.

QUESTIONS:

1. (a) What is the probable cause of the lung changes? (b) What is the cause of the cardiac failure?
2. What complications are liable to follow such an injury?
3. What could have been done in a diagnostic way? For therapy?

M. D., Tucson

CONSULTATION AND ANALYSIS
BY DR. REIMANN—

A man, aged 72, received severe trauma to his chest. Examinations showed "crushing of the right side," *but to what extent?* Was the thorax actually deformed with depression of the fractured ribs, or was there only superficial contusion? If ribs were broken and depressed one might have suspected *immediate laceration* of the pleura and/or lung with hemothorax and/or pneumothorax, and/or hermorrhage of the parenchyma of the lung. Since roentgenography revealed fractures only, and for 6 days no blood was expectorated, it must be assumed that the conditions mentioned did not occur. If the man were "thrown by a horse" and fell heavily to the ground striking the right side of his chest, *concussion of this right lung with diffuse interstitial or alveolar hemorrhage* is a more probable possibility. *Rupture of this lung occurred,* at any rate, to account for emphysema of the skin and muscles noted clinically and roentgenographically. That some *bleeding* occurred is suggested by the slight degree of secondary anemia later.

Contusion pneumonia of the right lung must be considered, but usually several hours and days elapse before characteristics of pneumonia develop. However, because of the patient's age and injury, pneumonia, if present, may have been indolent. Cough, dyspnea, slight fever and the rales which were mentioned are compatible with any of the conditions mentioned. Roentgenography did not give evidence of pneumothorax, pleural effusion or involvment of the right lung up to this time.

On the sixth day cough and dyspnea increased and bloody sputum was raised. In addition, pain developed in the left side of the chest. Next day the symptoms were intensified; no blood was raised but fever then was reported. There were rhonchi in both lungs and a possible shift of the mediastinum to the left. *The following possibilities may be mentioned to account for the increased degree of illness*:

The left lung may have been involved from (a) *pneumonia by contrecoup with pleuritis;* (b) *aspiration* of blood and secretion from the right lung, causing aspiration pneumonia; (c) *hypostatic pneumonia* from injury and confinement of an old person in bed; (d) *atelectasis* from immobilization in bed or from tight strapping; (e) *infarction* from immobilization or from emboli shed elsewhere; and (f) *congestion and hypostatic* pneumonia from circulatory failure or heart failure.

Fever, cough, dyspnea, cyanosis, bloody sputum, and leukocytosis are common to any of the 6 possible conditions listed. While *pneumonia* most likely was present, it probably was *secondary* to the other circumstances. *Atelectasis,* suggested by clinical evidence of shift of the mediastinum to the left (in the absence of right sided pneumothorax) also could have been secondary to any of the factors mentioned in the preceding paragraph.

The most likely cause of the condition, however, seems to have been *either circulatory failure or heart failure.* With the evidence at hand it is not possible to distinguish between the two, except that the *absence of peripheral edema suggest primary circulation failure.* This circumstance is not uncommon after severe injury in old persons. In this case failure may have been the result either of senescence or cor pulmonale from increased resistance in the pulmonary circulation. A combination of circumstances most probably was responsible. Evidence of failure began in the sixth day with tachycardia, irregular pulse, indistinct heart sounds, rhonchi in both lungs, low blood pressure (assuming it was higher before the accident) and concentrated urine.

The *sudden collapse and shock-like state* which took place in the eighth day might have resulted from several causes, as follows: (a) *embolism* of the lung, (b) sudden *atelectasis,* or, most likely, (c) final *collapse of a failing circulatory system.* The large amount of bright red sputum could have been caused either by infarction or circulatory failure. Coughing, sweating, tachycardia, fall of temperature and blood pressure, and a normal respiration are characteristics of *circulatory failure.* A roentgenologist reported possible edema of lungs or hypostatic pneumonia because of accentuation of the trunks in both lung fields, but these shadows also are suggestive of *venous overfilling* from circulatory failure. Density reported as possible effusion in the left base could have been due to atelactasis or hypostatic pneumonia.

The reported leukocytosis was compatible with any of the conditions mentioned but probably indicates secondary invasion of the congested, injured lungs.

QUESTION 2: *What could have been done in a diagnotic way?*

ANSWER: *More clinical information* about the first 6 days would have been helpful. If fluid was suspected in the left pleural cavity, *aspiration* might have been revealing. *Hydrothorax* from circulatory failure, *hemothorax* from an infarct, or *empyema* secondary to pneumonia might have caused it. *Bacteriologic examination* of the sputum would have been an aid to diagnose pneumonia if a predominance of pneumococci or other pyogenic bacteria had been present. Measurement of the *venous pressure,* of the corpuscular volume, and an electrocardiagram may have revealed the status of the circulatory system.

QUESTION 3: *What could have been done therapeutically?*

ANSWER: The questions of immobilization in bed, and of tight "strapping" of the chest is a problem in old patients. Both are conducive to *thrombosis and debilitation.* Yet after severe trauma there is often no choice. Tight strapping of the thorax leads to hypoventilation, anoxemia, cyanosis, embarrassment of the circulation, congestion of the lungs, atelectasis and local infarction; especially in debilitated patients. Yet, again, in the present case, severe pain may have necessitated a degree of immobilization. Morphine, often necessary to control pain, may be contraindicated in old people. Penicillin was indicated empirically because of the suspicion of pneumonia.

Treatment of circulatory collapse is indicated in this case; generally is unsatisfactory. It would be better to be able to control the condition which led to it. The injection of fluid sometimes causes overdistention of an already embarrassed circulation. The problem, unless dehydration is present, is not so much one of adding fluid, as it is to *get the blood to circulate properly.* The commonly used so-called cardiac stimulants, such as coramine, camphor, atropine, or strychnine rarely are helpful, and may cause harm. Cedilanid and digitalis are indicated only if actual heart failure or auricular fibrillation are present.

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PHOENIX CLINICAL CLUB

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

M.G.H. CASE

A thirty-two-year-old housewife entered the hospital because of a mass in the right lung. One and a half years before admission the patient entered another hospital because of headache and weight loss. An area of density 3.0 by 2.5 cm. was visible by x-ray in the right lower lobe. It was smooth in outline and homogeneous in density. The lung fields were otherwise clear. There had been no cough or hemoptysis. Bronchoscopy was negative. The patient refused operation and was discharged. During the next year and a half she was constantly fatigued, but lost no more weight. The headaches became less frequent and severer. The attacks were often associated with dizziness and mild nausea. Mild exertional dyspnea appeared in the last six months. One month before admission a mild, hacking, nonproductive cough developed. There was no fever or sweating at night.

With the birth of a son thirteen years prior to admission, the patient had "milk legs," which kept her in bid nine weeks. Early in this period there was a sudden, sharp, pleuritic pain anteriorly in the left chest. This lasted a day and caused difficulty in breathing.

A cousin with whom the patient had close contact died of tuberculosis eight years before admission. At the age of twenty-four the patient had a bilateral salpingectomy. The pathological report was acute bilateral salpingitis. The periods thereafter were regular until admission, lasting from one to six days. The first day of the period was usually accompanied by cramping pains.

On physical examination there was a decrease in breath and spoken voice sounds over an area 4 cm. in diameter to the right of the spine over the right lower lobe. The heart was normal. There was a healed midline suprapublic scar, with an area of slight tenderness around it. The cervix was long and normal. The uterous was forward and attached to the abdominal wall, was larger than normal and felt round. A hard, firm, irregular mass was palpated along the right side of the fundus.

The temperature was 99°F., the pulse 72, and the respirations 20. The blood pressure was 110 systolic, 70 diastolic.

The red cell count was 4,180,000 with 12.7 gm. of hemoglobin. The white-cell count was 7,700, with 57 per cent neutrophils. The urine was normal. X-ray examination of the lung revealed a mass just below the right hilum, probably in the right lower lobe. It had not changed in appearance from the original film. A flat plate of the abdomen and an intravenous pyelogram showed normal urinary tracts. There was an ill-defined, irregular mass in the pelvis slightly more to the right than left measuring approximately 11 x 6 cm. in diameter. It did not appear to exert any pressure on the urinary tract. A barium enema was negative.

An operation was performed on the twelfth hospital day.

DR. ROBERT T. PHILLIPS:

This 32 year old housewife was admitted because of a mass in the right lung. Examination on admission revealed in addition to the pulmonary pathology, an irregular mass palpable along the right side of the uterine fundus. An operation was performed on the 12th hospital day.

In general consideration we have:

(1) No weight loss in the past 18 months
(2) No fever or night sweats
(3) Normal temperature, pulse respirations, blood pressure, blood count and urine

On these considerations I will omit discussion of acute or chronic infections processes and malignancies. In the first examination of the pulmonary lesion we have described an area density 3 by 2.5 cm in the right lower lung.

It was smooth in outline and homogeneous in density. The lung fields were otherwise clear. The patient had no cough or hemoptysis. Bronchoscopy was negative at the time of admission, 18 months later the patient had had mild dyspnea on exertion for six months. One month before admission a mild hacking non-productive cough developed.

On physical examination there was a decrease in breath and spoken voice sounds over an area 4 cm. in diameter to the right of the spine over the right lobe. X-ray examination of the lung revealed a mass just below the right hilum probably in the right lower lobe. It had not changed in appearance from the original film. The condition of the surrounding lung is not commented on.

So we have a mass in the right lung near the hilum. This mass is not inflammatory nor malignant I say because of the previously enumerated general considerations. The dyspnea and cough described would suggest that this process is slowly growing and has finally encroached upon the lumen of a bronchus. Further x-ray, bronchoscopic and lipiodol studies have been denied us. However, our patient is a woman and under forty.

Adenoma of the bronchus is a lesion occurring most frequently in women under the age of forty and in the right lower lung. It is a tumor of slow growth and gives few symptoms or findings until it encroaches on the lumen of a bronchus. Cough is the most frequent symptoms. The cough is usually non-productive early. An asthmaloid wheeze may be present. As occlusion of a bronchus occurs pulmonary suppuration with atelectasis pneumonitis, lung abscess and complications may develop. Treatment may be bronchoscoping or surgical removal of the area of lung involved. It would seem logical to assume that the first operation to be done on this patient would be bronchoscopic study and possibly removal or fulguration of the tumor if found.

As to the pelvic pathology. We are told that there is a hard firm irregular mass pulpated along the right side of the uterine fundus. The uterus was forward and attached to the abdominal wall. It was longer than normal and felt round. A barium enema was negative. An intravenous pyelogram showed normal urinary tracts with no evidence of pressure exerted by the pelvic mass.

Eight years previous to admission the patient had had a bilateral salpingectomy for acute bilateral salpingitis. The periods thereafter were normal. About the same time the patient had had close contact with a cousin who died of tuberculosis. So we have a woman aged 32 with a

mass along the right side of the uterus who eight years previously had bilateral salpingectomy.

As previously stated I have decided that this cannot be inflammatory or malignant. It seems most improbable but it is of course barely possible that this could be an ectopic pregnancy. However Sampson states that 74% of women subjected to salpingectomy develop endometriosis in the site of the tubal stumps. It is difficult to prove whether post operative endosalpingosis has resulted from an out growth of the mucosa from the tubal stump or bits of tubal or uterine epithelium transplanted into the wound during operation. There is also the possibility that mucosa transplanted into salpingectomy wounds may come from the uterine cavity. There is also the possibility that the ovary may become adherent to the salpingectomy wound and be invaded by endometrial tissue.

So—did the patient go to bronchoscopy or was a pelvic laparotomy done either way my diagnosis will be:

1. Adenoma of the bronchus
2. Endometriosis of the right tubal stump.

DIFFERENTIAL DIAGNOSIS

Dr. Donald S. King: As Dr. Schatzki said in the preceding case we are constantly faced with the problem of what to do with cases that show in the x-ray film a small rounded area of density in the lung field. Within the last three weeks we have seen such shadows in three cases similar to the one that is presented to me today. I should like to put up the films on these three cases along with the film of the case that I am to discuss. The first film is the film of today's case. Unfortunately this is only a Bucky film which does not give the same density as an ordinary film. The lateral film in this case is also shown. As one notes, the three other cases are different from the case under discussion in that the lesions are in the peripheral area of the lungs and not near the hilum. The first of the outside patients had a negative x-ray film in 1939. A film taken in 1942 showed a rounded lesion. Fortunately I was away at the time this film was taken and did not have to decide what was to be done about it. We have other films taken in 1944 and 1946 which show that the lesion had changed very little if at all. The second case was one in which the lesion was picked up by routine exam of all employees in a large Boston Department Store; no symptoms of pulmonary disease. In the third case there were definite pulmonary symptoms and the decision to operate will probably not be difficult.

In the discussion of today's case we noted first the story of pleuritis pain which lasted a day and caused difficulty in breathing. There seems little question that the symptoms were due to pulmonary infarct. I do not believe there was any relation between this episode and the rounded lesion which appeared some years later.

As in the case discussed by Dr. Schatzki, this patient was also exposed to tuberculosis, and the diagnosis of tuberculosis must therefore be considered. There is a possibility that the bilateral salpingitis was also of tuberculous nature, but I assume that the pathological report of acute salpingitis rules out tuberculosis.

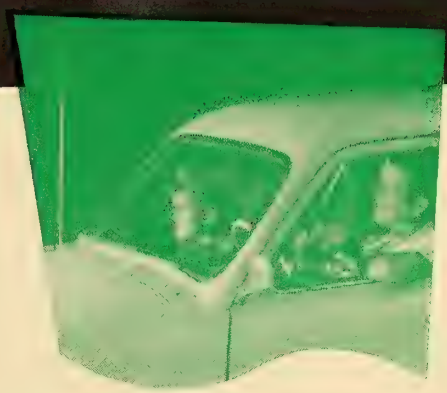
There was a decrease in breath and spoken voice sounds over an area 4 cm. in diameter to the right of the spine. This examiner certainly made a careful examination. I shall wager anything that he had seen the film before he made that report.

I assume from the description of the pelvic examination that there were two masses one of which was the uterus itself and the other outside the uterus, but I cannot be absolutely sure of this from the description.

The most important sentence in the whole history of the case is in the x-ray report which reads "it had not changed in appearance from the original film." We are therefore dealing with a lesion that did not change in 1½ years. The x-ray department goes on to report. "An intravenous pyelogram showed normal urinary tracts." Obviously the doctors in charge of the case were looking for evidence of a hypernephroma from which there had been a solitary metastases to the lung.

I suppose again, as in Dr. Schatzki's case, that the operation performed was an operation on the lung and not on the pelvis and we are again faced with the question of the nature of the round shadow. My first inclination was to bet again on tuberculosis because of the story of exposure and because the symptoms were somewhat suggestive of tuberculous infection. But there are two things against this diagnosis. In





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—Council on Pharmacy and Chemistry, New and Nonofficial Remedies, J.A.M.A. 143:815 (July 1) 1950.

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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

the first place, with a small rounded shadow due to tuberculosis there is evidence of tuberculosis elsewhere in the lungs. This is however not necessarily true. In the second place, except in a calcified primary complex the rounded shadow due to tuberculosis or so called tuberculoma, usually change in appearance in 18 months' time. I believe almost all of the tuberculomas that we have observed have changed in the x-ray film in that length of time. I am therefore inclined to say that the lesion under discussion is not tuberculous.

As I noted in the beginning this rounded shadow is near the hilum where we have seen some bronchiogenic cysts and some of the smaller cysts in this area have given somewhat similar x-ray appearance. Usually, however, the area of density is larger and gives a somewhat different shadow. I do not believe that this picture is sufficiently characteristic of a bronchiogenic cyst to warrant such a diagnosis.

Primary carcinoma of the bronchus and metastatic cancer are both, I believe, ruled out by the fact that there was no change in the film in 1½ years. So far as our experience goes I do not believe there has been a single case of primary or metastatic cancer of the lungs in which the x-ray shadow has not changed in this length of time. Even the hypernephromas, some of which are very slow growing have changed in that length of time.

Of course I am concerned about the condition in the pelvis. As I went over the case I was about to forget that there was anything wrong there and until the discussion of Dr. Schatzki's case I had not given a thought to the possibility of a pulmonary metastasis from the pelvis. Assuming that the operation was on the lung it is quite obvious that the doctors in charge did not believe there was a pelvic cancer from which a metastasis might occur.

Dr. Tracy B. Mallory: You are wrong about that. The operation was on the pelvis.

Dr. King: That is, of course, a bombshell. I was going to forget about the pelvic disease so I am even more interested in what you think about the pelvic condition, Dr. Meigs.

Dr. Meigs: I have a note on the record that I shall try to find.

Dr. Fletcher H. Colby: I am not convinced that metastatic lesions in the lungs necessarily change as you say in a brief period.

Dr. King: The only ones I can be sure about are the ones I have followed personally and all of these increased in size in a few months. In the famous case of hypernephroma in which the kidney was first removed and the metastasis taken out several months later with apparent cure after 12 years, the metastatic lesion had almost doubled in size in a year's time. We have also recently followed a case at the Baker Memorial Hospital in which the hypernephroma was taken out five years ago and metastatic lesions appeared in the lung one year ago. The lesions in the lung have unmistakably increased in size during a years observation. What the films might have shown had they been taken in the 4 year period before the metastatic lesions were discovered I do not know.

Dr. Colby: Some are fairly slow in growing. They must be because secondary deposists may appear even as late as 15 years or more.

Dr. Meigs: I shall read part of my note. "The cervix is long and normal in appearance. The uterus is forward and attached to the abdominal wall; it is large and round, definitely larger than it should be. The left side is negative but in the right side I believe I feel a hard, firm irregular mass. This mass probably represents the right ovary, although with tumor in the lung I think we ought to consider the question of neoplasm. Dr. Benedict should be asked if he would like to peritoneoscope her. If he does not and all studies on your service are negative we would be very glad to explore her."

The question is, what kind of mass is it? Apparently she has no abnormal menstrual periods. One would have to consider the possibility of a fibroid growing off the side of the uterus. It might be in the form of leiomyosarcoma which is a malignant tumor and may metastasize to the lung. Pelvic inflammatory disease we rule out because she had both tubes removed. One would have to consider ovarian tumor and it could even be endometrial cancer.

Dr. King: We do not know what this lesion in the lung was then?

Dr. Mallory: Yes we do.

Dr. King: And you know what the pelvis showed too?

Dr. Mallory: Yes.

Dr. King: We are now faced with the question whether we can connect the two processes. I came determined not to consider the pelvis as a possible source of metastasis and I shall keep to the line of approach. I do not believe that this is metastatic cancer.

I have already discarded tuberculosis and bronchiogenic cyst. The question raised in the previous case about benign adenoma interests me a good deal. Until 1942, except for one possible case all the adenomas we had followed were at least in part in the lumens of the larger bronchi and could be definitely proved by bronchoscopic biopsy. I was told that while I was away there was a case admitted from another hospital in which operation had shown an adenoma that was entirely outside the bronchus. The case under discussion may be that case. In view of the fact that this lesion has not changed in x-ray appearance in 1½ years and that it is close to the large bronchi, adenoma must be considered as a possible diagnosis.

There are a multitude of other benign tumors that should be mentioned, but it would be pure guess-work to try to name any other tumor. Fibroma, chondroma and hamartoma are all possible but taking everything into consideration I should say adenoma.

CLINICAL DIAGNOSIS: Adenoma of bronchus.

Dr. King's Diagnosis: Benign adenoma of lung.

ANATOMICAL DIAGNOSIS: Adenoma of bronchus. Endometriosis of ovary.

PATHOLOGICAL DISCUSSION:

Dr. Mallory: The first operation was on the pelvis and an ovarian mass was found to be due to extensive endometriosis of the ovary. About 10 days later the chest was explored and Dr. Sweet will tell you about that.

Dr. Sweet: This patient was admitted on the Gyn. Service and I was asked to see her before the pelvic examination relative to what was wrong in the chest. I thought we should see what was wrong in the pelvis first because at that time we did give some thought to metastatic tumor. Having proved that the pelvic tumor was benign and therefore not responsible for the pulmonary lesion we did go ahead with the chest operation. I came to the same conclusion as Dr. King—that it was an adenoma. It was an interesting operation because when I first exposed the tumor it was in the lower lobe, presenting on the fissure as it lay against the middle lobe. I thought that I could excise the tumor locally. There was not much lung tissue over it. I believed it was something I could pry out without difficulty but in dissecting I saw that it was actually growing out of a bronchus, and I did a lobectomy. The further pathological details we shall hear from Dr. Mallory, but I was convinced at the time that I was taking out an adenoma.

Dr. King: Was it inside or out?

Dr. Sweet: Both.

Dr. Mallory: I have the gross picture of the resected specimen. You can see the tumor without any difficulty almost completely circumscribed, but it was definitely adherent to the outer portion of the bronchial wall. There was no involvement of the bronchial mucosa and no narrowing of the bronchus by tumor. These tumors ordinarily arise within the bronchus although they may also extend outward between the cartilages and form a dumbbell shaped mass. This is a unique case, in our series at any rate, in that the tumor lay entirely outside the bronchus with no projection in the bronchial lumen.

Dr. Meigs: This patient had bilateral salpingitis and endometritis 8 years before admission. It is rare to see endometriosis under such conditions when the tubes are closed. This seems to refute Sampson's theory of menstrual blood flowing back through the tubes and producing endometriosis. If she had had the condition when she was first operated on it would probably have been noted.

Dr. Mallory: You might have noted it but most surgeons do not see it as readily as you do.

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TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By GUILLERMO OSLER, M.D.

For those who missed it at the A.M.A. meeting, Hench and colleagues have reported an item which seems ahead of its time. Cortisone and Compound F are *absorbed and effective by mouth* . . . The hormones are still in scarce supply—but when they increase to the 'pound and penny' stage, the knowledge can be used.

—❦—

A previous paragraph or two about versatile doctors has prepared the way for this one about Dr. Ward . . . Dr. J. P. Ward, that is. Our own Health Dept. Chief . . . We didn't allow for the width of versatility, though. Dr. Ward is the *winner of a cartoon caption contest* in a medical advertising mag! . . . This mention of it is not ridicule, just envy.

—❦—

Research in Arizona could well repeat and expand on a piece of Swedish investigation, published two years ago in the Annals of Rheumatic Disease . . . Drs. Edstrom, Lundin, and Wrammer reported on *Hot Climate for Arthritis*, or, 'Investigations into the effect of hot, dry microclimate on peripheral circulation, etc., in arthritic patients' . . . Thirty-four patients with rheumatic fever, and others with rheumatoid arthritis, were kept in an air-conditioned room for 100 days. The temperature was 89 F., the humidity 35% . . . Symptoms decreased, the peripheral vascular bed dilates widely, vascular reflexes decrease, oxygen saturation of venous blood (low in arthritis) rises above normal, and beta hemolytic streptococci are usually eliminated from the throat . . . Southern Arizona should be able to put into figures what we suspect the 'macro' climate does.

—❦—

No luck yet in finding out the results of studies on *desert warfare* . . . It was said that the Army had some interesting data during the last war, and it seemed that it might be applied to making living and therapy more satisfactory in the Southwest . . . The U.S.P.H.S. doesn't know of it, and it might not be wise to ask the Army about it right now.

Dr. Perrin Long of Johns Hopkins is one of the pioneers of chemo and antibiotic therapy. Every now and then he gives a summary of the use of the best agents, and he has done it again . . . The Pennsylvania Medical Journal contained *a comparison of penicillin, streptomycin, aureomycin, and chloromycetin* in a recent issue, and it was abstracted in 'Modern Medicine' . . . We have written to see if the charts can be reprinted in ARIZONA MEDICINE. They would be very valuable to have, and can even be further modernized.

—❦—

Histoplasmosis may occur in a progressive form. It is rare but is usually fatal . . . There has been no therapy for most fungus infections, and none for histoplasmosis until a report by Christie of Vanderbilt . . . He used a wartime fungicide called *ethyl vanillate* in treatment of five children, with recovery in all.

—❦—

The *Blue Cross plan* sometimes takes a beating. Everyone has read Dr. Paul Hawley's plea that physicians help to protect the plan. Needless hospitalizations and useless charges can be cut out by the careful doctor, and the costs and losses can be reduced . . . We agree, we condemn waste. We urge honesty and thoughtful use of the Blue Cross privileges . . . But (and here is where the shoe personally pinches) we have a feeling of sympathy for the *tuberculous patient* whose income has been cut off because his policy has been shifted from a 'group' to a 'direct' payment contract. It hits the tuberculosis hospitals where they live, too.

—❦—

A former Arizona Dept. of Health worker has moved up in the Federal service. *Dr. Arnold B. Kurlander*, on loan here before his three year service in Ohio, has been transferred to similar work in the Division of Tuberculosis at Washington, D. C.

—❦—

We'd give a nickel to know whether 'Banthine,' a brand of methantheline bromide, is of any more value than most approaches to *peptic ulcer therapy* . . . It acts as a parasympathetic blocking

agent, decreasing gastric secretion and intestinal motility. It is anticholinergic, like atropine, but perhaps is more selective . . . Pain has been found to be markedly reduced, the heart effects are scanty, but the degree of action on the eyes and salivary glands is not yet certain . . .

The risk of cataract formation from gamma and roentgen rays and from neutrons is said to be lessened by a 50% improvement in *protective glass* . . . The glass can be used for eye-glasses, or for peepholes in safety barriers of atomic reactors . . . The two kinds of glass were developed by five chemists at the University of Pittsburgh. The X and gamma ray glass contains tungsten phosphate. The neutron-stopper contains cadmium borosilicates and fluorides . . . Four feet of earth vs eight inches of cement vs a few cm. of glass.

One of the finest summaries which has come to this desk-in-the-desert is that of Armour and Company on 'ACTH.' Very clear, comprehensive and up-to-date—plus one additional rare quality—the presence of a *price list* which is so often missing when drugs or equipment is being discussed.

The lead article in the July 29th JAMA was by Gordon and Albright . . . Their authority in writing of the *treatment of thyrotoxicosis* by radioactive iodine can be judged by the sentence "The present report deals with the first 120 cases treated—". . . This is the same Dr. Edgar Gordon of Wisconsin who gave ARIZONA MEDICINE such a beautiful case-analysis in January, 1949, with its ultra-modern treatment of hypothyroidism and hypoparathyroidism.

The *history of pneumonectomy* is an amazing one. First, because it is only of 19 years duration and, second, because it progressed so regularly and well . . . Rudolph Nissen tells of removing the first entire lung in Sauerbruch's German Clinic in 1931; less than two years later Cameron Haight of Michigan removed one for bronchiectasis; shortly afterwards Evarts Graham of St. Louis removed one for carcinoma; and a few months later Rienhoff of Baltimore developed the currently used 'individual ligation' technique . . . The final amazing part of the story is that Nissen's patient was alive when last located, Haight's is married and has a child, and Graham's is now a practicing physician, aged 48 years.

Arizona chest surgeons have done a fairly high percentage of the *lung resections for coccidiomycosis*, alias 'valley' or 'desert fever' . . . Melick of Phoenix has summarized the cases by correspondence with the members of the A.A. for Thoracic Surgery, for publication in that society's journal for July 1950 . . . Replies were received from 224 individuals in 37 states, Canada, Sweden, and Hawaii. One hundred and nine cases were reported by 39 surgeons or groups . . . Melick had done 8 resections, Howell Randolph of Phoenix had done two, and Stacey of Tucson had done one . . . (We also have more than our share of the disease.)

It was certain that *anti-coagulant drugs* would be improved, and some of the early efforts are now available . . . A drug in the coumarin series is Tromexan, and it acts more rapidly and more briefly on the prothrombin time than Dicumarol . . . A drug with a similar action to heparin is called Paritol . . . Decision on the relative effects will have to wait, as usual.

A *new transfusion method* has been described by Dr. Carl Walter of the P. B. Brigham Hospital in Boston . . . Dr. Walter's equipment seeks to provide a donor set which (a) avoids a vacuum, (b) does not make use of glass, and (c) utilizes expendible materials . . . The blood is collected into a *transparent plastic bag* through plastic tubing. Absorptive resins in the tube remove the calcium and magnesium in the blood, and remove the need for anti-coagulants. The bag does not contain air, and the blood flows into it by venous pressure . . . It flows out of the bag either by elevation, squeezing by hand, or by the weight of the body as the patient lies on it.

In a pre-meeting summary of A.M.A. topics, Dr. M. J. Whitelaw of Phoenix was not credited with two papers, 'The Treatment of Juvenile Acne with Topical Estrogens,' and 'The Influence of Female Hormones on the Basal Body Temperature.' He also presented a film called 'The Use of the Cervical Cap in Oligospermia,' and discussed a paper 'On Sterility in the Male' . . . He did *not* discuss a paper on prostatic massage, as promised in the A.M.A. handouts, and repeated here.

Already *the alcoholic* has a way to circumvent the 'autabuse' treatment . . . Even if someone

forces him to take his pills regularly, all he has to do is to carry the equipment, a solution of ascorbic acid, ferrous chloride, and distilled water, and give himself an intravenous injection before he takes a drink, or later when the nausea reaction occurs . . . If this suggestion seems exaggerated, just think back on the cute and complex and fantastic things an alcoholic does to *get* a drink . . . Jokivarto of Finland says, in the Quart. J. Studies on Alcohol, that it works.

—❦—

Mas des pues, amigos.

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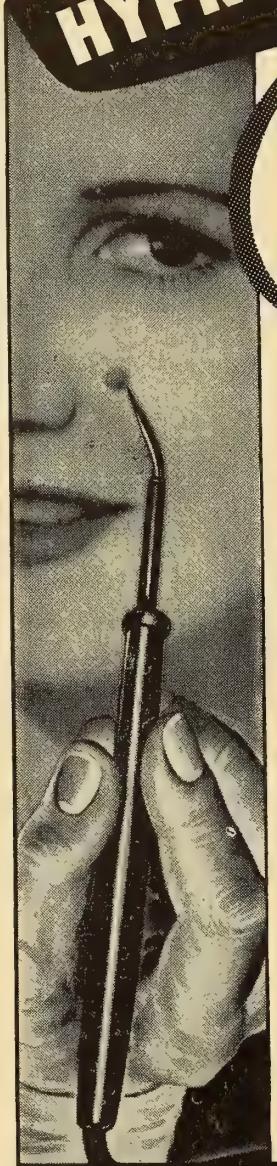
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PERSONAL NOTES

Dr. Albert Eckstein, Phoenix, was certified by the American Board of Internal Medicine, June, 1950.

Dr. Douglas D. Gain, Phoenix, has returned to practice of radiology after a year's post-graduate study in Philadelphia, Pennsylvania at the Graduate School of Medicine, the University of Pennsylvania.

He has been appointed head of the Department of Radiology at St. Monica's Hospital, Phoenix. Dr. Gain was certified by the American Board of Radiology in 1950.

Dr. L. D. Beck, Phoenix, attended the Oklahoma State Medical Convention, June 4-6th at Oklahoma City.

Dr. R. A. Gutekunst, Phoenix, has resigned as Resident Physician at the State Tuberculosis Sanitorium at Tempe. He has taken a position at Torrance, California at the Harber General Hospital.

Dr. Evelyn B. Johnson, Minneapolis, Minnesota, has come to the Maricopa County Health Unit as Pediatrician. She formerly was Pediatrician and Associate Cardiologist with Minneapolis Children's Heart Clinic.

Dr. Clarence G. Salisbury, Ganado, has accepted appointment effective September 1st, as Chief of the Bureau of Preventive Medical Services, Arizona State Department of Health.

Dr. Richard B. Johns, Phoenix, has accepted a Residency at Children's Hospital, Denver, Colorado.

Dr. James Ovens, Phoenix, completed a years residency in cancer surgery at the M. D. Anderson Hospital, Houston, Texas.

Dr. E. Payne Palmer, Sr. and *Dr. Joseph Bank,* Phoenix, are attending the International Conference on Cancer, in Paris, France.

Dr. Archie Cruthirds, Phoenix, attended the Sectional Meeting of Scottish Opthalmological Society, Glasgow-Edinburgh, Scotland, July 10th-14th and the International Congress of Opthalmologists, London, July 17th-21st, and the International Congress of Surgery, Argentine Chapter, Buenos Aires, Argentine, August 1st-8th.

Dr. Kenneth C. Baker, Tucson, attended the meeting of the Pacific Coast Dermatological Association in Oakland, California, September 1st to 4th inclusive.

NOTICE

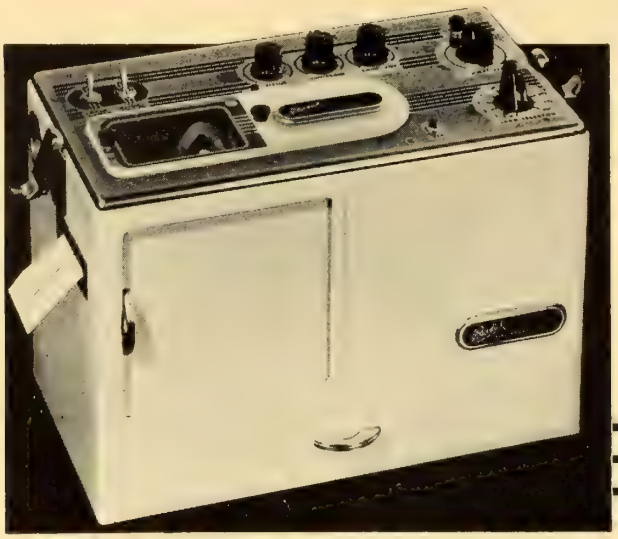
The Fifteenth Annual Assembly of the United States Chapter of the International College of Surgeons will be held in Cleveland, Ohio, October 31 to November 3, with headquarters at the Cleveland Hotel.

Surgical clinics will be held in several Cleveland hospitals on Monday, October 30. All scientific sessions will be held at the Cleveland Public Auditorium 9:00 a.m. to 5:00 p.m. Tuesday through Friday. A most excellent program has been arranged at which time some of the most prominent surgeons of America, and some foreign speakers, will discuss the current contemporary surgical scene.

Through the courtesy of Smith, Kline and French Laboratories, a fine colored television program of surgical procedures, originating from the St. Vincent's Charity Hospital, Cleveland, will be shown daily in the auditorium from 9:00 a.m. to 1:00 p.m. Motion pictures will also be presented each day depicting many of the recent advances in surgery and surgical technique.

One of the highlights of the meeting will be the annual banquet at the Statler Hotel on Thursday evening when America's great surgeon, Dr. Frank Lahey of Boston, will talk on "Some of the Recent Advances in Surgery." Dr. Elmer Henderson, President of the American Medical Association, will deliver an address on "The Importance of International Cooperation in Surgery."

Reservations may be secured by writing to the Committee on Hotels, International College of Surgeons, 511 Terminal Tower, Cleveland 13, Ohio. Preliminary programs may be obtained from the central office, 1516 Lake Shore Drive, Chicago 10.



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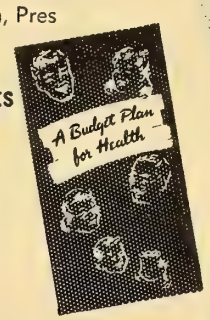
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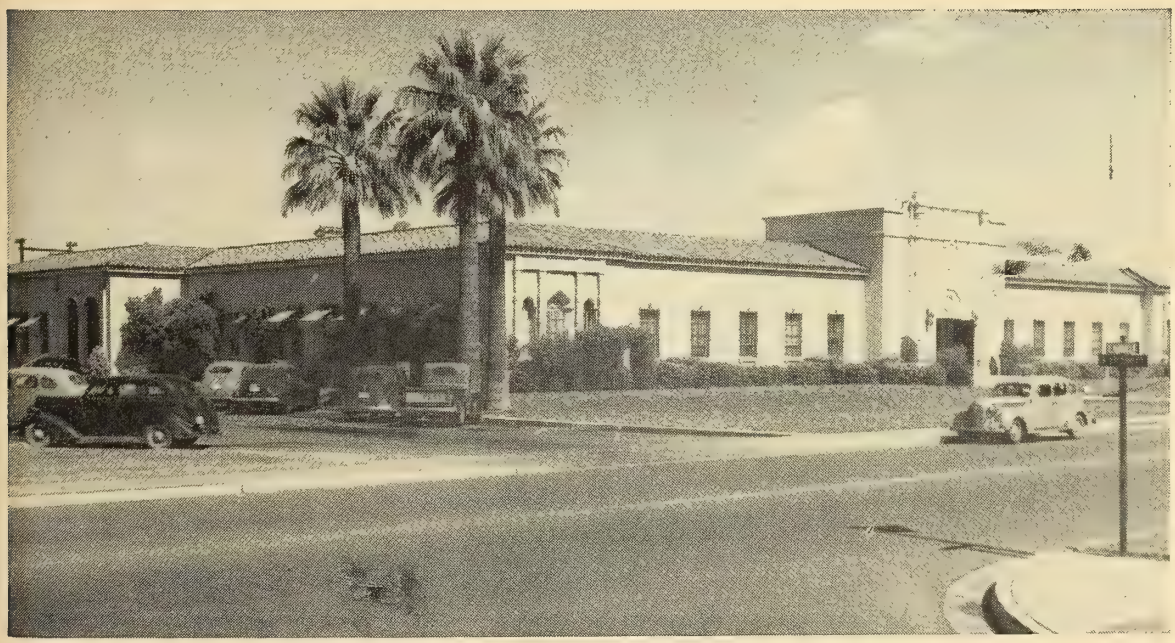
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The action of Pronestyl is probably due to a direct depressant action on the ventricular muscle. In auricular arrhythmias, preliminary observations indicate that Pronestyl slows auricular rate but usually does not re-establish normal sinus rhythm. At present, Pronestyl is not recommended in the treatment of auricular arrhythmias.

When is it indicated?

In conscious patients, for the treatment of ventricular arrhythmias.

During anesthesia, to correct cardiac arrhythmias.

What are its advantages in ventricular arrhythmias?

As compared with quinidine: Unlike quinidine, no important toxic symptoms have been reported following the use of Pronestyl orally. In therapeutic dosage, Pronestyl orally does not produce the nausea, vomiting, and diarrhea often caused by quinidine. At high oral dosage, these symptoms may appear.

Whereas intravenous administration of quinidine is hazardous and unpredictable, Pronestyl may be given intravenously with relative safety.

Pronestyl has been found effective in some patients who failed to respond to quinidine.

As compared with procaine: For arrhythmias, procaine is used only in anesthetized patients because its dose in unanesthetized patients is too toxic for clinical use. Pronestyl can be used in conscious and anesthetized patients.

Intravenously, Pronestyl is much less toxic than procaine. In the recommended intravenous dosage, Pronestyl does not cause the central nervous system stimulation typical of procaine in conscious patients.

Procaine is unstable, being rapidly hydrolyzed in the plasma to para-aminobenzoic acid and diethylaminoethanol. Pronestyl is not affected by the plasma procaine esterase, consequently it is much longer acting than procaine.

Procaine is not used orally because of its instability in the organism; Pronestyl can be used orally and intravenously.

What are its side effects?

Oral administration of Pronestyl in doses of 3-6 grams per day, for periods of time varying from 2 days to 3 months, produced no toxic effects as evidenced by studies of the blood count, urine, liver function, blood pressure, and electrocardiogram. Intravenous administration to patients without ventricular tachycardia produced only a moderate and transient hypotensive effect in about one-third of the subjects. However, during intravenous administration to patients with ventricular tachycardia, a striking hypotensive effect was almost invariably present. This disappeared concurrently with the establishment of a normal rhythm. Further studies are in progress to see whether the drug may be given intravenously over a period of time longer than five minutes so as to revert the ventricular tachycardia without causing hypotension. That this may be possible is indicated by the fact that some episodes of ventricular tachycardia have been successfully treated by oral administration without significant change in blood pressure. Electrocardiographic changes: prolongation of QRS and QT intervals and occasional diminution in voltage of QRS and T waves have occurred.

What is the dosage?

IN CONSCIOUS PATIENTS

For the treatment of ventricular tachycardia:

ORALLY: 1 Gm. followed by 0.5-1.0 Gm. every four to six hours as indicated.

INTRAVENOUSLY: 200-1000 mg. (2 to 10 cc. Pronestyl Hydrochloride Solution). *Caution—administer no more than 200 mg. (2 cc.) per minute.*

Hypotension may occur during intravenous use in conscious patients. As a precautionary measure, administer at a rate no greater than 200 mg. (2 cc.) per minute to a total of no more than 1 Gm. Electrocardiographic tracings should be made during injection so that injection may be discontinued when tachycardia is interrupted. Blood pressure recordings should be made frequently during injection. If marked hypotension occurs, rate of injection should be slowed or stopped.

For the treatment of runs of ventricular extrasystoles:

ORALLY: 0.5 Gm. (2 capsules) every four to six hours as indicated.

IN ANESTHESIA

During anesthesia, to correct ventricular arrhythmias:

INTRAVENOUSLY: 100-500 mg. (1 to 5 cc. Pronestyl Hydrochloride Solution). *Caution – administer no more than 200 mg. (2 cc.) per minute.*

How is it supplied?

Pronestyl Hydrochloride Capsules, 0.25 Gm., bottles of 100 and 1000.

Pronestyl Hydrochloride Solution, 100 mg. per cc., in 10 cc. vials.

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ANNOUNCEMENT OF VAN METER PRIZE AWARD

BY GEORGE C. SHIVERS

The American Goiter Association again offers the Van Meter Prize Award of Three Hundred Dollars and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The Award will be made at the annual meeting of the Association which will be held in Columbus, Ohio, May 24, 25 and 26, 1951, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations; should not exceed three thousand words in length; must be presented in English; and a typewritten double spaced copy in duplicate sent to the Corresponding Secretary, Dr. George C. Shivers, 100 East Saint Vrain Street, Colorado Springs, Colorado, not later than March 1, 1951. The committee who will review the manuscripts is composed of men well qualified to judge the merits of the competing essays.

A place will be reserved on the program of the annual meeting for presentation of the Prize Award Essay by the author, if it is possible for him to attend. The essay will be published in the annual Proceedings of the Association.

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SECRETARY'S LETTER

Philip R. Overton, general counsel for the State Medical Association of Texas, wrote an interesting letter recently to a physician in a Texas veterans hospital relative to membership dues in the American Medical Association. Two paragraphs of Mr. Overton's letter follow:

"Since I am not a doctor, but an attorney for the State Medical Association of Texas, it is necessary that I look upon your questions relative to dues in a personal way and with that in mind I feel that any individual who has prepared himself to practice a profession, such as medicine, should be willing to pay the $25 dues to his national organization. It would be a matter of pride with me as an individual and certainly I would want to carry my part of the load in defeating the socialistic trend now being fostered in this country; and too, while you or others in government service might not wish to become involved in political considerations as an American citizen it is my opinion that it would be your duty to express your opinion even though it might be in disagreement with that of your own state and national associations, and to do everything possible to see that the principles on which this country was founded are maintained. To my mind, there has been too much complacency, not only among the medical profession, but among the lawyers and the other professions as well as the people generally.

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BOOK REVIEW

PRACTICE OF MEDICINE. By Jonathan Campbell Meakins, C.B.E., M.D., LL.D., D.Sc. Fifth Edition. Pp. 1558. Illustrations 518 including 50 in color. The C. V. Mosby Co., St. Louis. 1950.

In the preface to this fifth edition the author begins by saying, "The task of writing a new edition of THE PRACTICE OF MEDICINE is becoming increasingly difficult . . . medicine is being clouded by a multiplicity of minutiae which are beyond the technical capacity or facilities of the general physician." When one reflects on this statement and gains some comprehension of the task of weeding out all of the non-essential minutiae which would fill many volumes and setting down the essentials in only one manageable volume, he is inclined to be tolerant and overlook any shortcomings or omissions as inevitable. Dr. Meakins has done an excellent job with a minimum of these shortcomings.

The arrangement of the text in chapters dealing with disease as related to the various regions and functional systems of the body has several obvious advantages. It makes it easy to locate the reference to any specific disease and this is further facilitated by a very good index. The index itself occupies fifty-five pages. The arrangement also allows an introduction to each chapter giving the reader a brief review of the physiology and pathology of the region or system and also a discussion of the symptomalogy of the system. Correlation of similar diseases is effectively done under this arrangement. These features should be very valuable to the student and make the book useful as a quick reference work for both the specialist and the general practitioner.

The descriptions of diseases are comparatively brief but are clear and concise. The specialist will find many omissions but most of these can be classified as non-essential minutiae. The specialist must go to his specialty references for these. The illustrations are for the most part of high quality and good selection. A few of the colored ones appear to have been carried over from earlier methods of color reproduction but are satisfactory. The color plates of blood smears and bone marrow smears as found in the chapter on diseases of the hematopoietic system are particularly good. Incidentally the text of this chapter is also very well written and very much up to date.

A chapter on Chemotherapy and Antibiotics has been added. Several chapters have been rewritten. One omission which may be considered unpardonable has been noted. That is the omission of any reference to unipolar electrocardiographic leads in the diagnosis of coronary artery disease. In this reviewer's opinion differential diagnosis has not been given the attention it deserves in a book which will be used by medical students but perhaps this has been compensated for in the excellent treatment of symptomalogy and positive diagnosis.

In conclusion I would say that Dr. Meakins has provided a very valuable reference work on general medicine which is surprisingly up to date in this time of rapid change in medicine. It should be very useful not only to the student and general practitioner, for whom it was probably primarily intended, but to the specialist as well.

R.L.F.

BREAST DEFORMITIES AND THEIR REPAIR. By Jacques W. Maliniac, M.D. Cloth $10. P. O. 193 with numerous illustrations and diagnosis. Greene and Stratton, Inc. 381 Fourth Avenue, New York 16, N. Y. 1950.

This concise booklet presents in a small volume the history, anatomy and physiology, and the surgical treatment of all types of breast deformities. Brief descriptions of operative procedures long abandoned are given showing the reasons why they were given up, as a prelude to the more thorough discussions of plastic procedures now in use. To the plastic surgeon called upon to perform mammary plastics this will be an excellent reference all in one source, while to the general surgeon occasionally performing or contemplating performing plastic procedures on the breast this will be a valuable aid in avoiding some of the pitfalls encountered in the early surgery in this field.

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When George B. Larson of the A.M.A. Bureau of Exhibits, drove to the Montana State Medical Association meeting in Bozeman recently, he was stopped at the state line by a husky greeter, dressed in a flaming red shirt, overalls and western sombrero.

"Welcome, pa'dner," said the man with a smile, and handed Larson a big envelope from the Montana Chamber of Commerce. All out-of-state cars are stopped at the border and every driver is given one of the envelopes containing literature extolling the beauty spots of the state.

Mr. Larson thumbed through the material later and, much to his amazement, found two mimeographed papers carrying copies of resolutions passed by the Montana Chamber of Commerce against socialized medicine.

One resolution said: "We oppose federal medicine for the simple reason that like every other key plank to Marxian socialist doctrine it simply will not work. No nation in the world has better medical care or is in better health than the United States. This obvious fact leads us to believe that socialized medicine is a scheme to exploit the doctors who are a minority in order to pretend to distribute benefits to the voting majority who are the people. This is dishonest."

Judging from Mr. Larson's experience, it is very evident that the hard work done by Montana doctors against socialized medicine is paying off. Congratulations!

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REPORT

Council on the Management and Treatment of Diseases of the Chest,

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Considerable attention has recently been given to BCG vaccination in the public press. From this publicity the impression might be gained that this procedure alone holds promise of real control of tuberculosis. Since such an impression might postpone indefinitely the establishment and extension of accepted control measures, this statement of the status of vaccination in tuberculosis control programs is issued.

1. Control measures in tuberculosis should be directed at eradication of the disease as a major cause of death or disability.

2. The marked improvement in tuberculosis mortality figures, particularly for the ages under 30, demonstrates the effectiveness of the present control program.

3. The low rate in children and the continuing high rates in adults over 50 emphasize the location of the problem at the older age levels rather than in children. Under these circumstances, the efficiency of a method of tuberculosis control would be measured by its effect on the mortality from tuberculosis in the older age group, rather than in children.

4. The addition of a vaccine to the present control program requires both careful and adequate consideration. Of the vaccines proposed, BCG has been used most widely and is the one most often discussed.

5. This has been used for more than 25 years and recently many millions of people have been vaccinated. However, it must be stated that there is no evidence that meets strict scientific requirements demonstrating that BCG affects the control of tuberculosis, despite the very suggestive results of a few studies.

6. Because of the above fact and because there is no general agreement among investigators anywhere in the world on such fundamental matters as the preparation of vaccine, the method of vaccination, what constitutes a successful vaccination, how resulting immunity may be measured, how long such immunity lasts, etc., the procedure would seem to be still in the investigational period.

7. It is therefore recommended that investigation of vaccination in tuberculosis be continued and increased under standard and stringently controlled conditions. This investigation should be designed to determine if the vaccine is indeed effective and what the limitations of its use might be. It would seem desirable that in each country, one agency preferably the official health agency, should have control of the investigation.

8. Until this has been determined and until these controlled studies are completed, the use of BCG vaccine should be limited to such investigative studies.

9. At the present time the methods which have been proved effective in tuberculosis control should be increasingly applied to all segments of the population, regardless of decreasing mortality figures, so long as tuberculosis remains an important cause of death. These measures include mass x-ray case finding, early diagnosis, rapid institution of treatment, isolation of open cases, and the restoration of the patient to normal life.

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BRITISH DOCTORS WANT TO QUIT HEALTH SERVICE

British doctors are becoming more and more fed up with red tape under the British National Health Act.

Last week newspapers reported that delegates to the annual meeting of the British Medical Association adopted a resolution urging preparations for a withdrawal from the system because of delay in negotiations on payment of general practitioners.

General practitioners now are paid from a pool calculated at a yearly rate of $2.52 a head of 95 per cent of the population, known as a capitation fee.

For the current year this pool is about $112,000,000 and the amount paid to each doctor depends on the number of patients he has under the system.

The doctors contend that the pool should be increased by $46,200,000 a year from that of July, 1948, when the scheme began, and that the capitation fee should not be fixed but be on a sliding scale.

One delegate told newsmen that doctors had been turned into form-filling drudges, that the health service was in a mess and that it was getting worse.

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(1) Thorn, G.W.; Quinby, J.T., and Marshall, C., Jr., Ann. Int. Med. 18:913 (June) 1943.
(2) Orent-Keiles, E., and Hallman, L. F., Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 7, NO. 11 NOVEMBER, 1950

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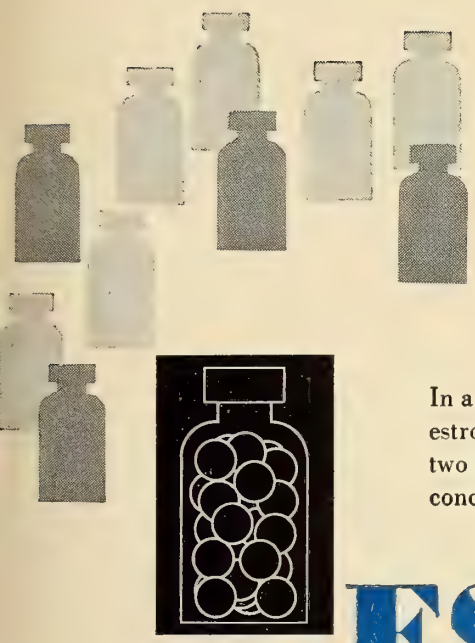
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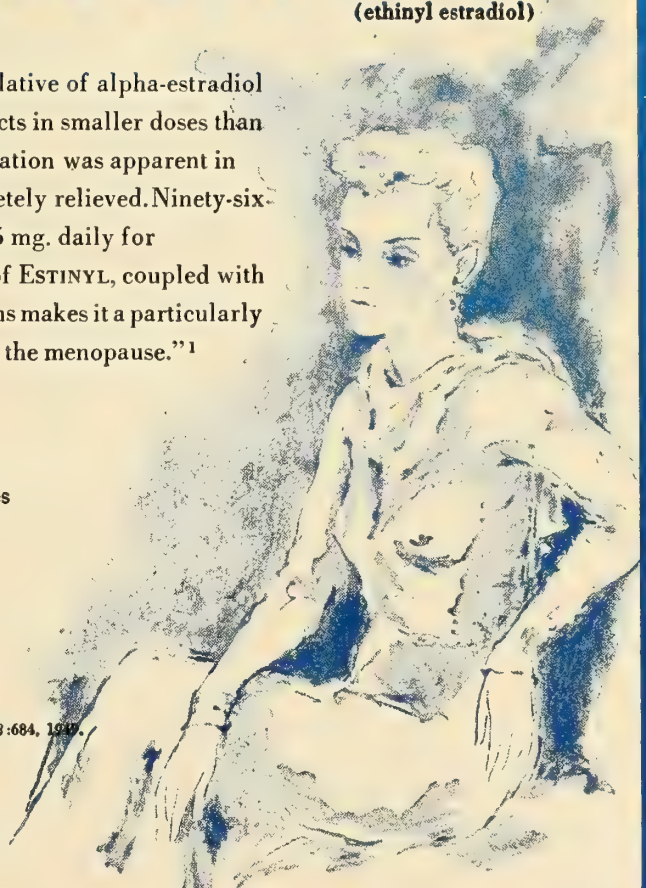
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1. Perloff, W. H.: Am. J. Obst. & Gynec. *58*:684, 1949.

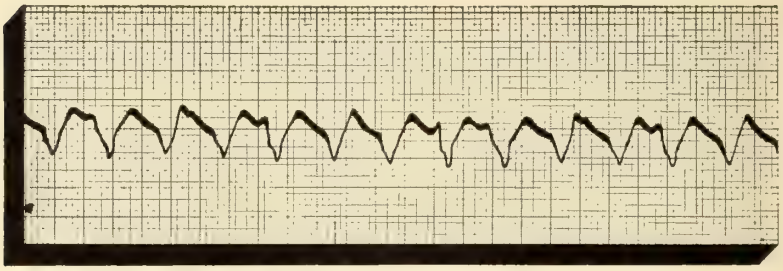
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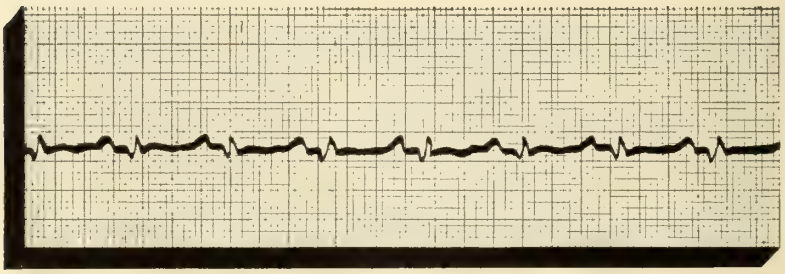
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for the treatment of ventricular arrhythmias

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In conscious patients, for the treatment of ventricular arrhythmias.

During anesthesia, to correct cardiac arrhythmias.

What are its advantages in ventricular arrhythmias?

As compared with quinidine: Unlike quinidine, no important toxic symptoms have been reported following the use of Pronestyl orally. In therapeutic dosage, Pronestyl orally does not produce the nausea, vomiting, and diarrhea often caused by quinidine. At high oral dosage, these symptoms may appear.

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Procaine is unstable, being rapidly hydrolyzed in the plasma to para-aminobenzoic acid and diethylaminoethanol. Pronestyl is not affected by the plasma procaine esterase, consequently it is much longer acting than procaine.

Procaine is not used orally because of its instability in the organism; Pronestyl can be used orally and intravenously.

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IN CONSCIOUS PATIENTS

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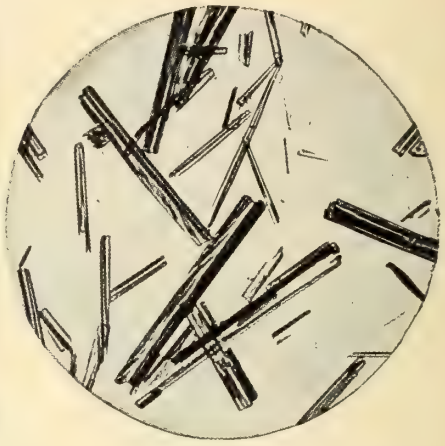
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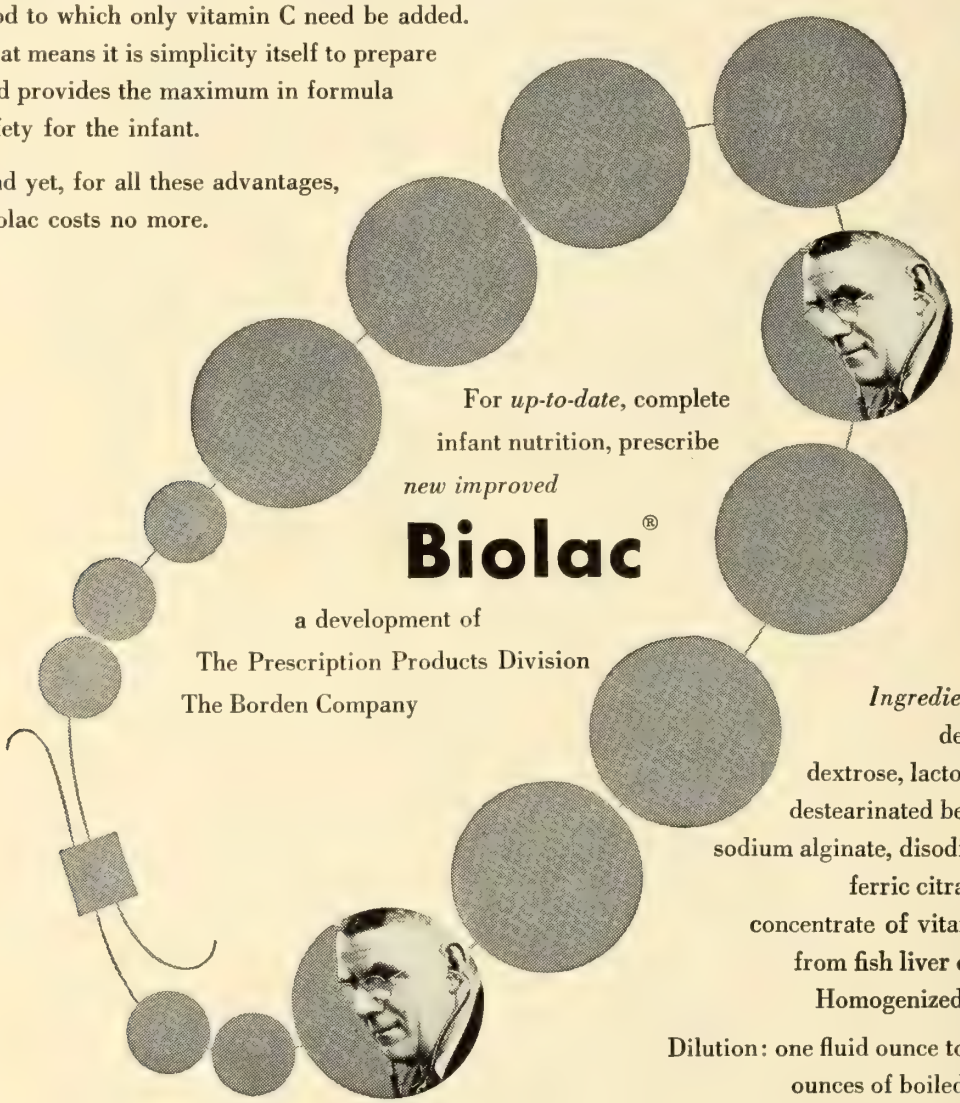
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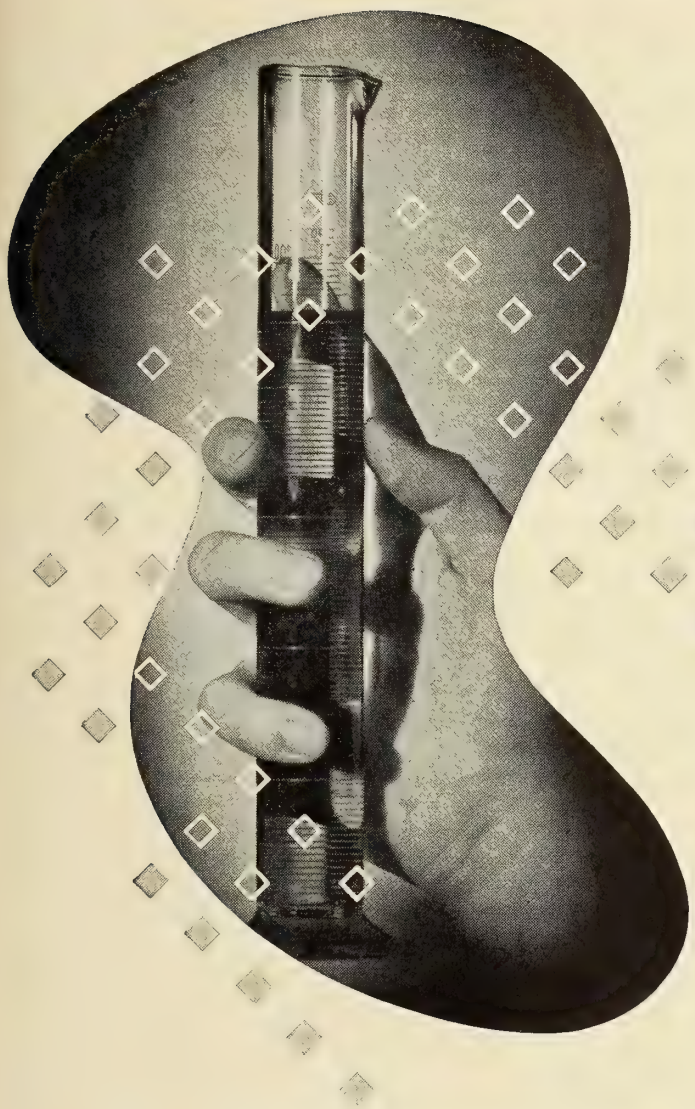
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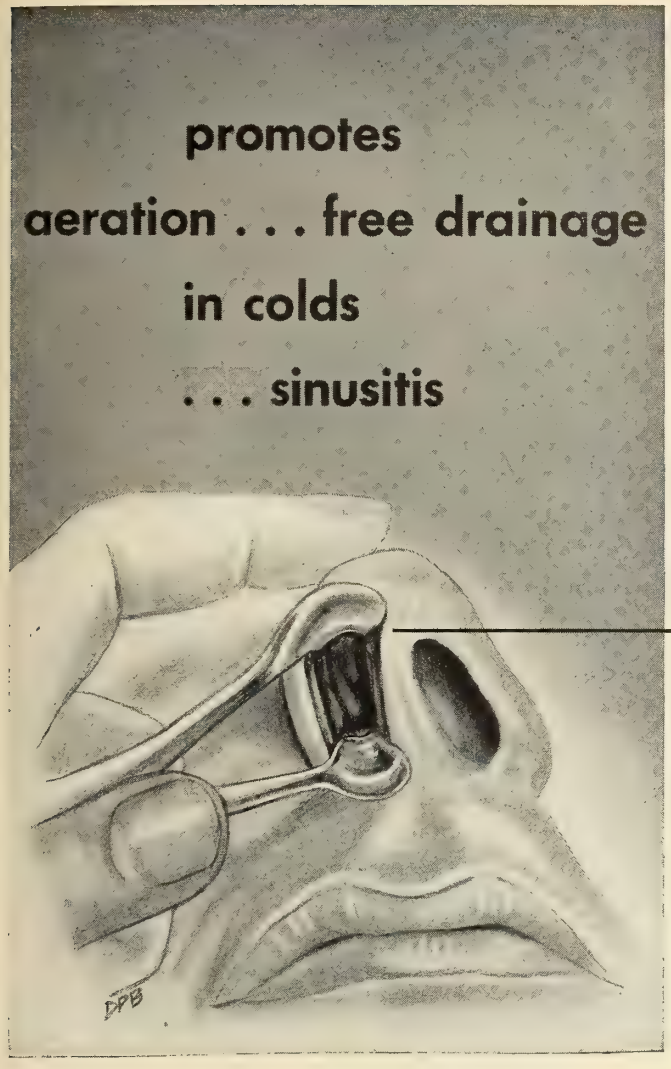


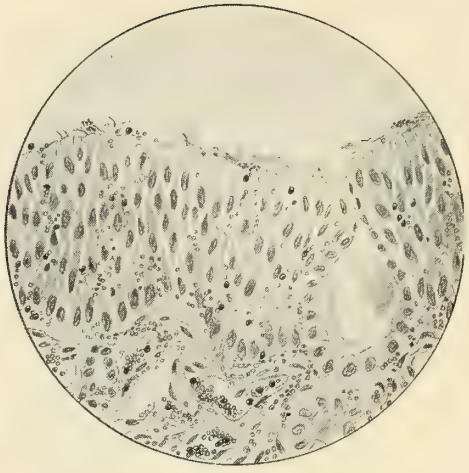
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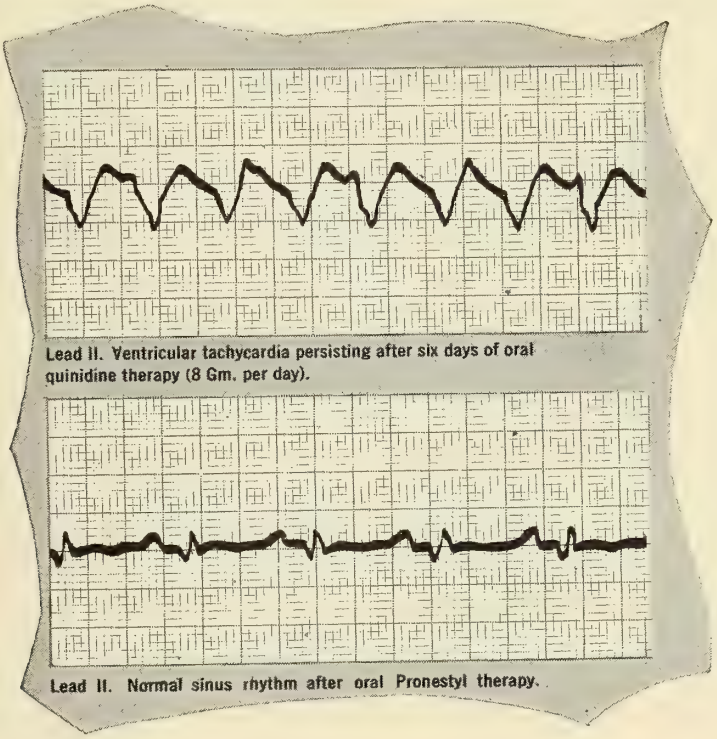
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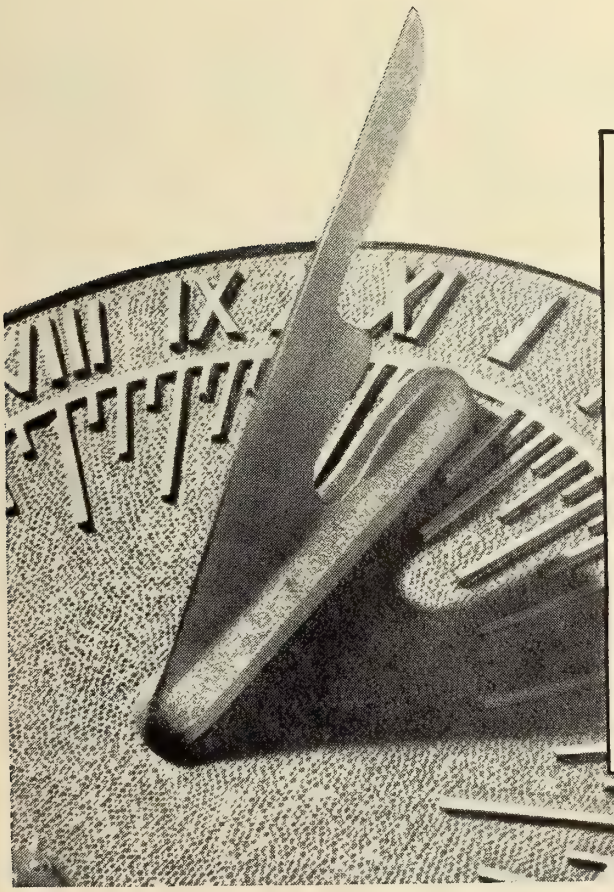
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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

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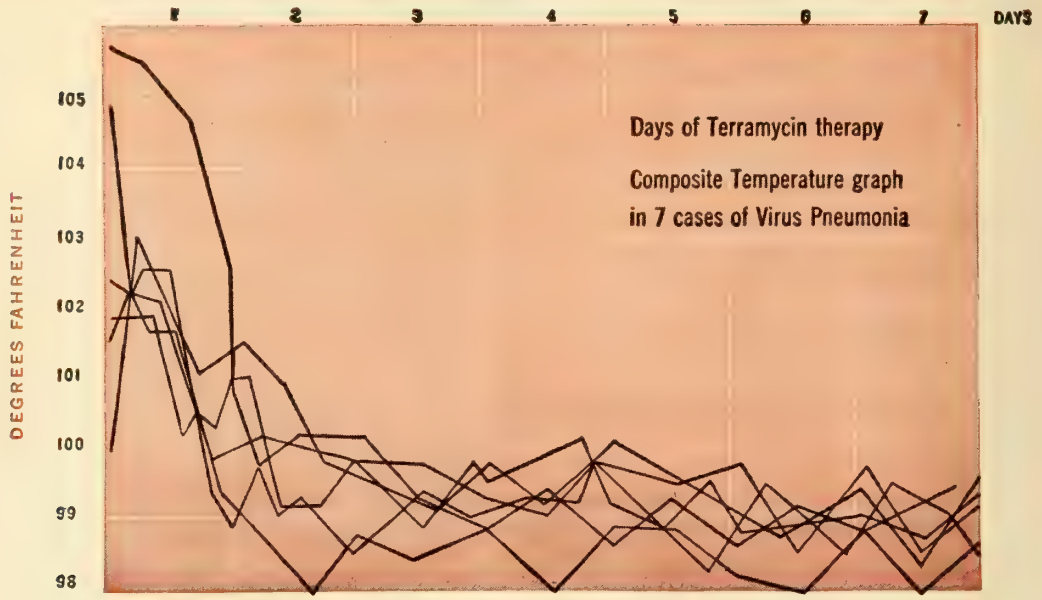
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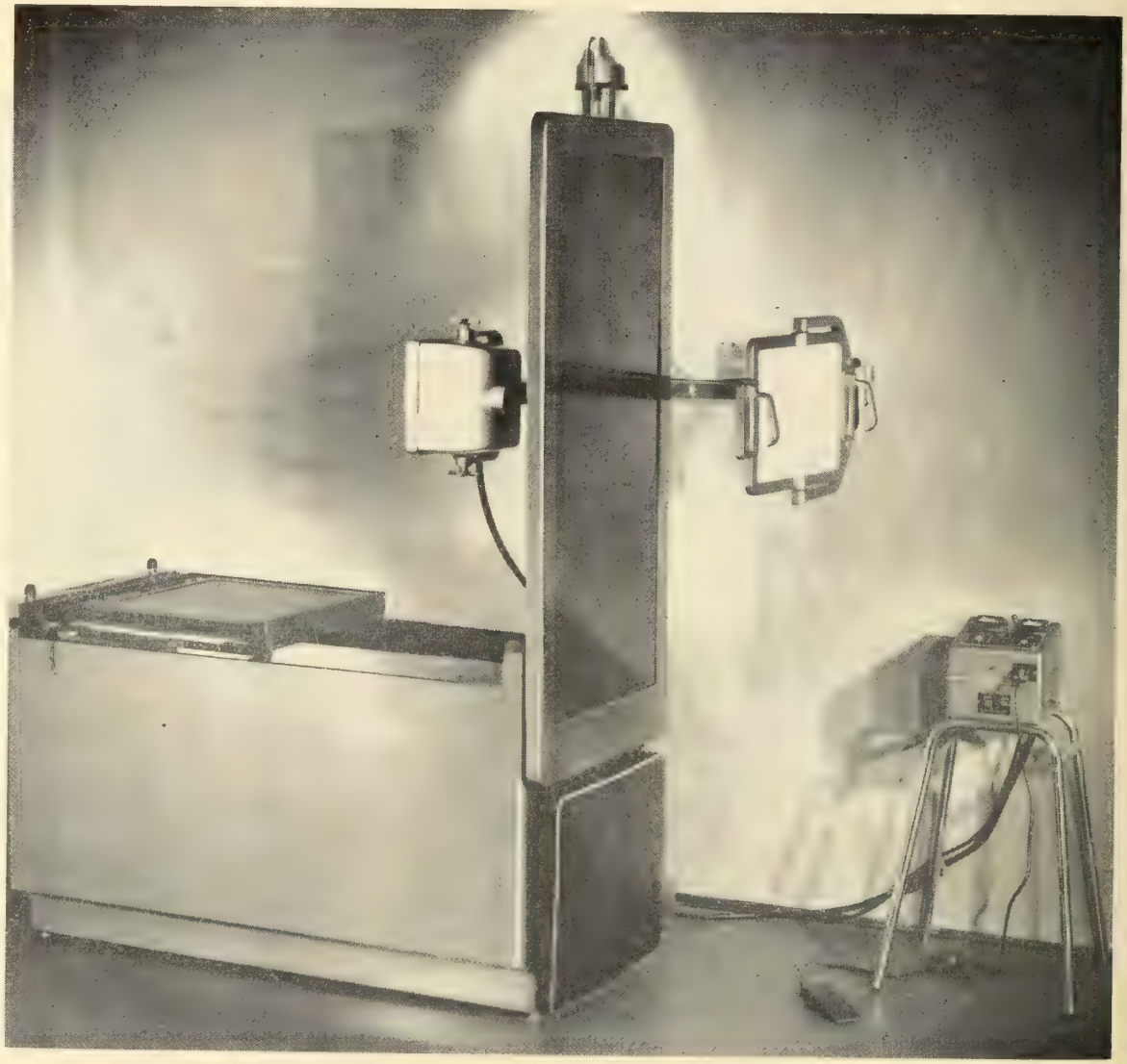
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ARIZONA MEDICINE

Journal of ARIZONA MEDICAL ASSOCIATION

VOL. 7, NO. 11 NOVEMBER, 1950

THE CLINICAL USE OF ANTIBIOTICS

PERRIN H. LONG, ELEANOR A. BLISS, EMMANUEL B. SCHOENBACK, CAROLINE A. CHANDLER, and MORTON S. BRYER*

(The following article is composed of portions from a lecture by Dr. Perrin H. Long, at St. Mary's Hospital, London, and published as a paper in THE LANCET, June 24, 1950. The original article was entitled 'The Experimental Background and Clinical Use of Antibiotics'. Those sections have been chosen which seem of greatest clinical interest. Dr. Long stated that the data and tables were modern on August 15, 1950. The report certainly is one of the finest summaries and comparisons which has become available. The subject could be most confusing if one had to rely only on individual reports about various drugs and the claims of the many manufacturers. ARIZONA MEDICINE is grateful for permission to reproduce it).

* * *

TODAY, the practioner of medicine will be found wanting unless he understands clearly the experimental background for the clinical use of the many antibiotics which are, or soon will be, at his disposal. To serve efficiently his patient who is suffering from an infectious process, he must choose that antibiotic which experimental and clinical experience has shown to be best for that particular infection. His knowledge must be such that he unerringly administers the antibiotic of choice.

Five years ago this was easy: one recommended the use of penicillin if it appeared to be indicated. Four years ago the situation became more complicated owing to the introduction of streptomycin, an antibiotic which is highly effective not only against many gram-negative bacillary organisms but also against certain gram-positive ones. But even then the choice of antibiotics was not too difficult. Now the situation has changed. One has the choice of bacitracin for use in limited spheres, or of aureomycin, chloramphenicol ('Chloromycetin'), or terramycin in a wide variety of infections; and polymyxin, neomycin, and viomycin may soon emerge over the clinical horizon. Other effective antibiotics will undoubtedly be discovered, and, with each new therapeutic agent of this type, the practitioner's problem of choosing the right one for the treatment of his patient become more complex.

However, this multiplicity of antibiotics is all to the good, at least as far as the patient is concerned. The increasing range of efficacy of these agents against infectious processes, the ease with which they can be administered, and the certainty of their beneficial action have completely altered the medical, social, and economic aspects of infectious diseases. In most instances the practioner can confidently assure a patient who is suffering from an infection that he will be well in a short time. This undoubtedly improves the relations between the practitioner and his patient. The latter benefits socially and economically by frequently being spared the costs of catastrophic illness, and, since certain of the antibotics such as aureomycin are admirably suited for home use, the costs of hospital and other medical care are often avoided. Furthermore, with the development of new antibiotics and with an increase in our knowledge of possible prophylactic uses for these agents, they are becoming exceedingly valuable in preventing certain infectious processes from developing after exposure has taken place, and in minimising the seriousness of others. Thus the proper choice and use of antibiotics for the control and treatment of infections assumes a very important role in the practice of medicine, because they concern not only the life and well-being of the patient but even his social and economic status. This paper presents relevant data from our own laboratories and our own clinical experience.

*From the Department of Preventive Medicine, The Johns Hopkins University School of Medicine, Baltimore.

(Sections on Experimental Toxicity, Antibacterial Effects In Vitro, Bacterial Resistance, Treatment of Experimental Infections, and the Pharmacology of Antibiotics have been deleted. They may be studied in the original paper in THE LANCET.)

THE ANTIBIOTIC OF CHOICE

Having sketched the background of experimental work, we shall now attempt to summarise current thought concerning the selection and use of antibiotics. (We shall confine ourselves to the systemic use of antibiotics, because we think that their employment as topical agents is generally unnnecessary and often dangerous. Sensitisation to an antibiotic can most readily be produced by its local use.)

The subject is dynamic: what is first choice today may not be recommended at all a year hence—so rapidly is work progressing. But though our recommendations, presented in tables I and II, are liable to revision as experience increases or new antibiotics are developed, there are nevertheless certain fundamental rules which the physician should bear in mind:

1. Adequate doses should be employed. The aim should be to bring the infection under control as quickly as possible. This is especially important in the treatment of severe or fulminating infections.
2. Do not overtreat the patient. Antibiotics are often expensive, and all of them can produce toxic reactions. Watch carefully the clinical and laboratory response of the infection to therapy, and when in your opinion the infection is controlled discontinue treatment.
3. Remember that in most instances the response should be prompt. As a rule, if definite clinical improvement is not evident within one to three days, the physician should question the value of further therapy with the particular antibiotic he is using in the particular case.

   Necessarily this last statement must be qualified by a knowledge of the natural history and pathological nature of the infection. Infectious processes of soft tissues which are of short duration generally clear up quickly; while those in bone, in thrombi, and in certain other tissues require longer exposure to the antibiotic agent. It is also important to know whether the antibiotic has a bactericidal or a bacteriostatic action against the agent causing the infection. If the action exerted is bactericidal, the therapeutic response is generally very prompt; while if it is bacteriostatic, the response may be slower and treatment must be more prolonged. Here, too, thought must be given to the phenomena associated with a natural recovery from the particular infectious process, especially in relation to immune responses. When certain infectious diseases are treated very early in their evolution, and therapy is discontinued as soon as a good response to treatment has been obtained, there may be a rapid relapse because immunity has not developed.
4. While infecting micro-organisms frequently, and often quickly, develop "step-like" resistance to streptomycin, and less frequently to penicillin, they seldom develop a similar resistance to aureomycin or chloramphenicol.
5. In severe or fulminating infections, if two or more effective antibiotics are available, use them simultaneously. The aim of all antibiotic therapy is to bring the infection under therapeutic control as speedily as possible. (See Table III.)
6. Don't give antibiotcs "on a hunch that they might do some good." Use them only when there are indications that their administration is a rational procedure. Only too often antibiotics are employed without any logic for their use. This practice increases the cost of medical care to the patient or taxpayer, increases his chance of becoming sensitised to the antibiotic, and does no-one good.

PROPHYLACTIC USE OF ANTIBIOTICS

As the range of effectiveness of antibiotics against infections has been increased by the discovery of new agents, so too have the uses of antibiotics in the prophylaxis of infections. These uses are portrayed in table IV. Of especial interest are the following:

The administration of 300,000 units of crystalline penicillin G by mouth, or of 300,000 units of procaine penicillin G by the intramuscular route, will markedly decrease the incidence of gonorrhoea in those exposed to the chance of this infection.

The prompt administration of 600,000 units of procaine penicillin G in oil, with 2% aluminium monostearate added, will decrease the incidence

of syphillis in those exposed to this infection.

In closed communities, crystalline penicillin G, given by mouth, can be used in the prevention of B-haemolytic streptococcal or meningococcal infections.

Aureomycin given by mouth in doses of 2 g. a day for three or four days appears to be highly effective in the prophylaxis of puerperal infections.

In rheumatic subjects the intramuscular administration of procaine penicillin G before and after the extraction of teeth, the removal of tonsils, or for that matter any operative procedure around the nose or throat will materially aid in preventing the development of subacute bacterial endocarditis.

The same is true when, before operations on the large bowel in older patients, streptomycin is given orally, with sulfasuxidine, to decrease the flora in the large bowel. Antibiotics, alone or with certain sulphonamides, are also useful when operating on patients with perforating abdominal wounds, and in operating on the lung.

The risk of infection after certain "clean" operations—e.g. for cataract—is much decreased by prophylactic use of antibiotics. In established infections, in which surgical interference is indicated, the proper use of antibiotics will greatly facilitate the control of postoperative spread of the micro-organisms.

There can be little doubt that the intelligent use of antibiotics has been an important factor in the improvement of the results of many surgical procedures over the past few years.

DOSAGE

We shall not spend much time here on the dosage of the various preparations of the antibiotics; for this subject is generally understood. A few points, however, are worth discussing.

Penicillin

Now that procaine penicillin G has been introduced, the use of crystalline penicillin G can ordinarily be reserved for certain severe infections. When employed, it should be given in doses of 25,000 units and upwards by the intramuscular route, at intervals of three hours day and night, until the infection is controlled.

Among the procaine penicillins, the preparation of 300,000 units of procaine penicillin G which has 100,000 units of crystalline penicillin G added to it is one of the most valuable. This may be given by intramuscular injection in aqueous suspension in doeses of 300,000 units or more at intervals of eight to twelve hours. It combines the features of continuous and intermittent therapy and is a good preparation to use in many severe and almost all moderate cases of infection which are susceptible to the antibacterial action of penicillin. It also produces relatively few reactions.

A less desirable preparation of procaine penicillin G is that in vegetable oil with 2% aluminium monostearate added. The usual dose, given by the intramuscular route, is 300,000-600,000 units. As the release of the penicillin in the tissues is greatly slowed, detectable (but not necessarily therapeutic) levels of penicillin are found in the blood for about three days after the administration of a single dose. This preparation can be used in the prophylaxis of certain infections, in the treatment of mild infections which are susceptible to the effects of penicillin, and especially in syphilis. As a rule, in infections other than syphilis, procaine penicillin G in oil with aluminium monostearate added may be administered by the intramuscular route at intervals of forty-eight to sixty hours.

The use of penicillin by mouth for the treatment of severe, moderately severe, or even mild systemic infections is not recommended. It is the least desirable way of administering penicillin, and an expensive one.

Streptomycin

At present, it is believed that dihydrostreptomycin offers no special advantages over streptomycin in the doses in which these compounds are now given, and there is little use for either except in tuberculosis. This statement is made because micro-organisms rapidly become resistant to the antibacterial effects of both these antibiotics, and because both may produce serious and lasting toxic reactions. In the treatment of tuberculosis both are employed in dosages much lower than formerly. Thus, in tuberculosis other than miliary and/or meningeal, the recommended dose is now 0.5 of either compound by intramuscular injection twelve-hourly for at least forty-two days. In miliary or meningeal tuberculosis, 0.75 g. of the antibiotics is given twelve-hourly for ninety to one hundred and twenty days. It is currently considered advisable in tuberculosis to use p-aminosalicylic acid (P. A. S.) in conjunction with streptomycin. In adults the daily dose of P.A.S. is 10-12 g., and it should be given in a flavoured alkaline menstruum.

Aureomycin and Chloramphenicol

As will be noted from Table V, dosage schedules for aureomycin and chloramphenical are well established. With aureomycin, in severely ill patients treated by the oral route, the initial dose should be based on 10 mg. per kg. body-weight. For moderately ill patients the total daily maintenance dose by mouth is based on 20-30 mg. per gk., and for seriously ill patients it is based on 50 mg. per kg. In either instance the total daily maintenance dose is divided into four parts, one of which is given every six hours. If it seems desirable, in seriously ill patients, to initiate treatment by giving aureomycin intravenously, the sodium glycinate preparation should be used. The initial dose should be based on 10 mg. per kg. body-weight, while the total daily maintenance dose is based on 20-30 mg. per kg. The latter is divided into thirds, one of which is given every eight hours. But not more than 300 mg. of aueomycin should be given in one dose intravenously.

With chloramphenicol, the initial or "priming" dose is based on 60 mg. per kg. This is divided into thirds, given at hourly intervals by mouth. The total daily maintenance dose is based on 60 mg. per kg. for moderately ill patients, and 60-120 mg. per kg. for seriously ill patients, divided into four parts, one of which is given by mouth every six hours. So far, no commercially available preparation of chloramphenicol has been developed for parenteral use. Neither aureomycin nor chloramphenical should be given by the intrathecal route.

Terramycin

Terramycin is administered by mouth. Currently (and this recommendation may well be changed as our experience increases) it is believed that moderately ill patients should receive a total daily dose based on 25 mg per kg. body weight. This may be divided into fourths, one of which is given every six hours. The dosage of terramycin for seriously ill patients has not been definitely established, but a reasonable basis for the total daily dose is 40-50 mg. per kg.

TOXICITY

The toxic reactions which may follow the administration of pencillin, streptomycin, or dihydrostreptomycin are well known. Reactions due to the sensitisation of patients to these three antibiotics seem to be increasing, and it should be borne in mind that dihydrostreptomycin and streptomycin can cause permanent vestibular damage and permanent deafness.

As will be noted from table VI, the important reactions produced by aureomycin are nausea, vomiting, and loose stools (often amounting to a diarrhoea). It is believed that the nausea and vomiting are produced partly by an exogenous factor in the preparations of aureomycin at present available for administration by mouth. The looseness of the bowels results from disturbance of the bacterial metabolism in the colon due to the suppression of bacterial growth in that organ. Localized dermatitis has been noted when aureomycin ointment is being used, and a scaly or acneiform type of dermatitis has occasionally been reported when aureomycin was being administered. Drug fever has been noted rarely.

Chloramphenicol produces nausea, vomiting, and often looseness of the bowels, but to a less degree than aureomycin. A scaly skin eruption and drug fever have been observed during treatment, and so has granulocytopenia, both granulocytic and erythrocytic series being hypoplastic.

Terramycin gives rise to nausea, vomiting, and diarrhoea in a proportion of patients. The severity of the signs and symptoms seems to depend somewhat on the size of the dose. Skin eruptions and drug fevers have been recorded. Terramycin, aureomycin, and chloramphenicol can all cause irritation of the mouth and tongue with soreness and ulceration. Renal injury or damage to nervous tissue has not yet been reported in patients receiving these three antibiotics.

CONCLUSION

Owing to its widespread (and often very injudicious) use, reactions to penicillin are rapidly increasing in numbers and severity. Streptomycin and dihydrostreptomycin may produce permanent vestibular dysfunction and/or deafness; and as there are better and less toxic antibiotics for other types of infections, their use should be limited to tuberculosis. To date, aureomycin and terramycin have been relatively non-toxic, if nausea, vomiting, sore mouth, and diarrhoea are excluded from consideration. Chloramphenicol is known to cause granulocytopenia and therefore might cause agranulocytosis. It is too early to say whether the population will become reactive to these last three antibiotics as it has to penicillin. Only time will tell. But we should remember that, up to the present, *all antibiotics have proved poisonous to some patients,* and we should use them with care and thought.

TABLE I — PRESENT-DAY USAGE OF ANTIBIOTICS IN INFECTIONS

Infection	Penicillin	Streptomycin	Aureomycin	Chloramphenicol	Terramycin
Streptococcal:					
B-haemolytic	I	II	II	III	U
a-haemolytic	I	II	II	..	U
Non-haemolytic	I	..	II	..	U
All enterococci	II	..	I	..	U
Staphylococcal	II	..	I	..	III
Pneumococcal	I	III	II	..	III
Neisserian:					
N. meningitidis	I	..	II	III	U
N. gonorrhoeae	I	II	III	III	III
Diptheritic	I	..	..	..	U
	Antitoxin +				
Tuberculosis	..	I+P.A.S.	..	..	..
Anthrax	I	..	I	..	U
Clostridial:					
Gas-gangrene	I	..	U	U	U
Tetanus	?	..	..	..	..
Gram-negative bacillary:					
Bact. coli	..	II	I	I	II
Bact. pneumoniae	..	II	I	I	II
Proteus	..	I	..	..	U
Bact. aerogenes	..	II	I	I	U
Ps. aeruginosa	..	II (Polymyxin is best)		..	II
Salmonella:					
S. typhi	..	..	..	I	..
Others	..	?	?	?	?
Shigella	..	..	I	I	U
Pasteurella:					
P. pestis	..	I+S.D.	U	U	U
Brucella:					
Bact. tularense	..	..	I	I	U
Br. melitensis	..	II+S.D.	I	I	U
Br. suis	..	II+S.D.	I	I	U
Br. abortus	..	II+S.D.	I	I	U
Listerella	..	..	I	U	U
Cholera	..	..	U	U	U
Haemophilus:					
H. influenzae meningitis	..	III+S.D.	I+S.D.	II+S.D.	U
H. pertusis	..	?	?	?	U
H. ducreyi	..	II	I	I	U

I = First choice III = Third choice S.D. = Sulphadiazine
II = Second choice .. = No value U = Unknown

TABLE II — PRESENT-DAY USAGE OF ANTIBIOTICS IN INFECTIONS

Infection	Penicillin	Streptomycin	Aureomycin	Chloramphenicol	Terramycin
Spirochaetal:					
Treponema pallidum	I	..	II	II	II
T. pertenue	I	..	U	U	U
T. carateum	I	..	U	U	U
Bacillus recurrentis	I	..	U	U	U
B. vincenti	I	..	U	U	U
Leptospira icterohaemorrhagiae	?	..	U	U	U
Donovania granulomatosis	..	II	I	I	U
Bartonella	..	..	U	I	U
Streptobacillary	..	I	U	U	U
Bacteriodosis	..	II	I	U	U
Rickettsial:					
R. prowazeki	..	..	I	I	U
R. mooseri	..	..	I	I	I
R. rickettsi	..	..	I	I	U
R. Conori	..	..	I	I	U
R. akari	..	..	I	I	U
R. tsutsugamushi	..	..	I	I	I
R. burneti	..	..	I	I	U
Viral:					
Psittacosis	II+S.D.	..	I	I	U
Lymphogranuloma venereum	II+S.D.	..	I	I	U
Primary atypical pneumonia	..	..	I	I	U
Herpes simplex	..	..	?	U	U
Herpes zoster	..	..	I	I	U

Chickenpox	..	..	U	U	U
Vaccinia disseminata	..	..	I	U	U
Smallpox	..	..	U	U	U
Measles	..	..	U	U	U
Mumps	..	..	..	..	U
Infectious mononucleosis	..	..	..	..	U
Epidemic hepattis	..	..	U	U	U
Epidemic keratoconjunctivitis	..	..	?	U	U
Poliomyelitis	..	..	..	..	..
Influenza	..	..	..	..	..
The common cold	..	..	..	..	..
Parasitic:					
Acute amoebic dysentery	..	..	I	U	U
Fungal:					
Actinomycosis	1+S.D.	..	U	U	U
Trichomonas vaginalis	..	..	I	U	U
		I locally			

I = First choice U = Unknown S.D. = Sulphadiazine
II = Second choice .. = No value

TABLE III — SUGGESTED COMBINATIONS OF ANTIBIOTICS IN SEVERE INFECTIONS

Infection	Penicillin	Streptomycin	Aureomycin	Chloramphenicol
Severe staphylococcal	I	..	I	..
Subacute bacterial endocarditis:				
a-haem. strep	I	..	I	..
Enterococcal	I	I	I	..
Gram-negative	..	I	I	I
Staphylococcal	I	..	I	..
Acute bacterial endocarditis:				
B-haem. strep	I	..	I	..
Pneumococcal	I	..	I	..
Meningitis:				
Pneumococcal	I	..	I	..
Staphylococcal	I	..	I	..
Gram-negative	..	I	I	I

TABLE IV — PROPHYLAXIS OF INFECTIONS WITH ANTIBIOTICS

Infection or Condition	Penicillin G	Streptomycin	Aureomycin	Chloramphenicol
Cholera	..	..	U	U
Gonorrhoea	I	U	U	U
Syphilis	I	..	..	..
Haem. streptococcus	I	..	II	U
Meningococcal meningitis	I	..	U	U
Puerperal sepsis	II	..	I	U
Rheumatic fever	I	..	U	U
Subacute bacterial endocarditis	I	..	II	U
"Clean" surgery	I	..	I	U
Colonic surgery	..	I P.O.+S.S.	I	II
Pulmonary surgery	II	III	I	II
Established surgical infections	I°	II°	I°	I°
Extractions of teeth	I	U	II	U

I = First choice U = Unknown ° = As indicated
II = Second choice S.S. = Sulfasuxidine .. = No value
P.O. = Per os

TABLE V — DOSAGE SCHEDULES FOR AUREOMYCIN AND CHLORAMPHENICOL

Severity of Illness	AUREOMYCIN		CHLORAMPHENICOL	
	Initial Dose (mg. per kg.)	Total Daily Maintenance Dose (mg. per kg.)	Initial Dose (mg. per kg.)	Total Daily Maintenance Dose (mg. per kg.)
Moderate (oral route)	None	20-30	60	60
Revere (intravenous route*)	10	20-30	..	..
Severe (oral route)	10	50	60	60-120

When the oral route of administration is being used, the calculated total daily maintenance dose is divided into 4 parts and is given at intervals of 6 hours.

*When aureomycin is being administered by the intravenous route, do not give more than 300 mg. in any single dose. The intravenous doses should be spaced at intervals of 8 hours. A shift should be made to treatment by mouth as soon as possible.

TABLE VI — IMPORTANT TOXIC REACTIONS IN THE COURSE OF ANTIBIOTIC THERAPY

Reaction	Penicillin	Streptomycin	Aureomycin	Chloramphenicol	Terramycin
Anaphylactic shock	Very rare	Vary rare	O	O	O
Dermatitis	Common	Common	Rare	Rare	Occurs
Renal injury	O	O	O	O	O
Haematopoietic injury	O	Eosinophilia	O	Granulocytopenia	O
Central nervous system injury	Very rare	O	O	O	O
Drug fever	Common	Common	Rare	Rare	Occurs
Vertigo	O	Common	O	Very rare	O
Deafness	O	Occurs	O	O	O
Nausea	O	O	Common	Occurs	Very Common
Vomiting	O	O	Occurs	Rare	Common
Loose stools	O	O	Common	Common	Common
Mouth lesions (oral administration)	Common	O	Occurs	Common	Common

FUNCTIONAL HEART DISEASE

STEPHEN R. ELEK, M.D.

Functional heart disease is usually considered to be a negative or exclusion diagnosis. When a patient has symptoms related or referable to the heart and the history, physical diagnosis and appropriate laboratory tests do not indicate organic heart disease, then a functional diagnosis is made. Or, the physician may label this cardiac neurosis or cardiac anxiety state. The following illustrates this:

A thirty year old male recently came to see me complaining of mild, non radiating chest pain around the left nipple not correlated with exercise or activity. Since this complaint he has been aware of his heart beating. His father recently died suddenly, aged fifty-five years, of an acute myocardial infarct without a preceding cardiac story. A thorough workup was negative. He was given assurance and has not had any complaints since then.

This is a clinical story with which we are all familiar. It is especially apt to crop up when someone in the public eye or know in a community dies unexpectedly; a certain number of patients then hasten to the physician and the history cited above is obtained.

But this is not what I mean by functional heart disease. Rather, I refer to the patient, young or old, of either sex, who has persistent physical fatigue with or without effort, tachypnea or dyspnea with or without effort, palpitation, precordial distress and pain of a definite type, giddiness, perspiration usually confined to the axillae and palms, temperature, frequent sighing, tremors of the hands, low hyperventilation index (see below) and sudden bursts or eruptions of these manifestations with or without a precipitating cause.

The patient believes or suspects heart diseases chiefly because of the fatigue, easy breathlessness, precordial distress and palpitation. As will be seen later, he may have functional gastric symptoms too but evidently the layman fears heart disease more because of its inimate association with unpleasant disability and death.

It is interesting to recall that this entity has usually been seen during or after wars. It was first described by the celebrated DeCosta (1) during the Civil War and was called DeCosta's syndrome. Lewis (2) wrote extensively about this disorder after World War I and termed it effort syndrome, but it need not be related to effort at all. It is oftimes labeled neurocirculatory asthenia, but the description of the latter in most texts is not clear at all; to many physicians it means only neurasthenia or generalized weakness for which no cause is found. It seems best, following the lead of Friedman (3), to term this functional cardiovascular disease (FCVD)*.

*Since the phrase functional cardiovascular disease is lengthy, it is hereafter abbreviated to FCVD.

I might add that my own experience is based on several hundred cases seen during World War II. In addition, my knowledge of this disorder is fortified by further experience in private practice which indicated to me that, contrary to what DaCosta thought, this entity is seen during civilian life as well.

Let us discuss the leading symptoms separately as one might do for any other disease such as acute peptic ulcer.

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Easy Fatiguability:

The frequent occurrence of fatigue in both anxiety and organic disease states is too well known to require comment. It is worth recalling, as DeGraff (4) and de la Chapelle (5) have emphasized, that fatigue occurring sooner than usual is probably the earliest manifestation of congestive heart failure. In the latter, however, fatigue comes on after effort or the end of a day of even mild or restricted activity; likewise, in anxiety states, the fatigue is disproportionate to the activity participated in. In FCVD, curiously and uniquely enough, as I have repeatedly observed, fatigue occurs notably in the morning soon after arising, and indeed after a good night's sleep. Patients with FCVD are usually puzzled by this; to the laymen, fatigue is due to organic disease and should come on after activity. Friedman (3) has studied the problem of possible muscular dystrophy in these patients and found none. He did observe in a standardized weight lifting test, an asynchronous and asynergistic performance while normal patients did this same test in a smooth, nonjerky manner; hence the former used up a disproportionate amount of energy for the task or "overshoot", signifying thereby an incomplete coordination of the autonomic nervous system.

Mental fatigue likewise occurs sooner and, like physical fatigue, is not commensurate with the mental job done at a particular time. I have not observed this syndrome after excessive physical fatigue alone, nor has it been recorded so far as I know.

Dyspnea:

Breathlessness is probably the most evident insignia of functional heart disease. Lewis (2) thought that tachypnea and dyspnea occurred only after effort. Christie (6) properly described the shallowness and irregularity in rate and depth of the respiration. It is known now (7) that breathlessness does not stem from effort alone and there is neither oxygen lack nor carbon dioxide accumulation. It would seem unlikely that blood gaseous exchange is at fault for tachypnea and dyspnea occur when these patients are emotionally disturbed; this rather suggests neurogenic imbalance. Characteristically, these patients are subject to sudden attacks of accelerated breathing with the subjective sensations of dyspnea. This may be precipitated independently of any preceding physical, mental or emotional disturbance, and hence patients are bewildered. This is usually best seen in hospital practice, but can be studied if the patient reports immediately to the doctor. Perhaps this explains the reported discrepancies regarding this phenomenon.

There is also little diaphragmatic movement, or inertia, as can be seen directly by inspection or under the fluoroscope. Most patients employ the chest for breathing and predominantly the upper one-third of the chest. During sleep, however, they may breathe abdominally. Those persons who do use diaphragm for breathing will, during slight effort or under emotional tension, revert to upper chest breathing. If the patient who breathes with the upper one-third of his chest is asked to use his diaphragm his attempt is usually not successful.

Palpitation:

This is usually due to the occurrence of premature systoles, of auricular or ventricular origin, or paroxysmal supraventricular tachycardia. Sharp precordial pain may be present with these arrhythmias. A premature systole produces (a) awareness of the heart and (b) subjective disturbance due to the compensatory pause for the patient wonders "if my heart will start up again"; hence he has cardiac consciousness. Palpitation as the sole symptom will give rise to these manifestations, but when combined with fatigue, breathlessness, etc., we have the constellation of FCVD.

Precordial Distress:

There are two types of precordial discomfort is FCVD, namely sharp and dull, and their features are outlined in the following table:

	Sharp	*Dull*
Site: Left anterior chest, usually around the nipple, at times going through to the back.		
Radiation	None	None
Character:	Piercing	Like a soreness
Duration:	5 minutes or less	10 minutes to hour
Preceded by:	Forceful pounding and/or arrhythmias	Vigorous effort with tachypnea

Relation to breathing:	Patient afraid to breathe	None
Signs of neurogenic discharge, e.g., cold hands, sweating, hand tremors, etc.		
Relieved by:	Common	Common
	Cessation of pounding in chest; not affected by nitro-glycerine	Taping upper ⅓ of chest
Probable cause:	Pounding of the heart, or arrhythmias	Fatigue of the intercostal muscles

Sharp paint also occurs in patients who have pounding of the heart due to fright or scare and in those who have paroxysmal tachycardia. In the latter, indeed, one is suspicious of underlying myocardial pathology. Relief of the dull type of pain by taping the upper ⅓ of chest suggests fatigue of the intercostal muscles. Conversely, as Friedman (7) showed, if the lower ⅔ of the chest is taped even in a normal patient, thus compelilng the latter to breathe with the upper ⅓ of his chest, dull left anterior chest pain will result.

Contrast the above type of pain with true anginal pain. In the anginal syndrome, the pain is substernal and typically radiates to the left shoulder and down the medial aspect of left upper extremity to the fourth or fifth fingers. It is squezing or compressing in nature and usually takes place after effort but without tachypnea. Rest and nitro-glycerine almost always relieves it and the basic cause is myocardial ischemia. Hence, it has delineatable differences from the chest discomfort of heart disease and one must carefully elicit the differences. It is worthwhile mentioning at this stage of the discussion that FCVD may be superimposed on organic heart disease and this can be illustrated in the following clinical example which recently came to my attention at a cardiac clinic:

> A fifty-three year old male refugee who had established hypertension and angina, entered the clinic complaining of sharp pain, not related to effort, centered around the left nipple, without radiation, and not relieved by nitroglycerine, although this drug had always alleviated his chest pain. In addition, I noticed sighing, cool moist hands and axillary sweating, mild tachypnea, and tremors of the fingers. A diagnosis of FCVD was made on the history alone, superimposed on his organic cardiac disease. Further checkup disclosed no evidence of myocardial infarction or congestive heart failure. Additional history revealed an emotional upset regarding a brother in Germany who failed to obtain his passport for emigration to this country, and this precipitated FCVD.

The patient with organic heart disease is especially vulnerable to FCVD, not the least reason being that premature or sudden death may occur.

Fever:

It may seem strange to discuss fever as a feature of FCVD or any functional disease for we invariably associate fever with organic disorders. In fact, I must confess that there was a time in my own intellectual development when I could not accept the existence of fever without organic causation. But recent studies on the function of the hypothalamus and the brilliant work of Friedman (8) have convinced me otherwise. The salient differences between the fever of functional and organic disease may be stated thus:

The fever of FCVD has a wider range, varying about two degrees. It does not occur every day, it occurs only when the patient is awake and is absent during sleep. The pulse in usually normal, and the skin is cold and often mottled. Psychic tension directly affects its occurrence. The fever is not an index of the severity of the disorder. Patients usually do not complain of it. Central nervous system stimulating drugs (8), chiefly benzedrine and caffeine, can provoke the fever in the afebrile stage. By contrast, the fever of an organic disease, let us say active minimal pulmonary tuberculosis, has a smaller range varying about 1.5 degrees. It occurs every day and is higher during sleep. The pulse is usually accelerated and the skin is warm and not mottled. Psychic tension does not affect its presence or severity. The fever is an index of the intensity of the disease. Patients usually complain about feeling warm. Drugs like benze-

drine and caffeine do not affect it. The fever is usually remittant, while in FCVD it is usually episodic.

It must be stressed that these conclusions were reached by Friedman after thorough organic tests for foci of infection. The neurogenic etiology of fever had already been understood by Hamman (9), Reiman (10), and Wolff (11). It can often be found in focal lesions near the sympathetic nuclei in the hypothalamus. The provocation of fever in patients with FCCD by drugs which stimulate the higher centers of the central nervous system and the appearance of fever in states of psychic tension is an extraordinarily stimulating finding. Patients with FCVD also respond abnormally to artificial pyrexia with typhoid vaccine (3) suggesting not only that the hypothalamic nuclei in these patients is somehow deranged but also that these nuclei are abnormally sensitive. In addition, fever in this functional disorder pins down or labels a possible anatomical site which might explain the symptomatology of this condition.

Giddiness:

This is not true vertigo for the patient does not feel that either he or the environment is swimming. Rather, it consists of a lightheaded or blacking out sensation without nystagmus. It is most apt to occur upon changing bodily position. Patients become quite accustomed to it and may not even complain of this unless it is brought to their attention. Friedman has performed vertibular function tests and found no abnormality. According to Friedman (12), the sequence of events is as follows: Changing from the supine to the erect position (when giddiness is most apt to occur) produces a normal reduction in venous flow to the right auricle. This normal physiological change precipitates, in these patients, *excessive* reflex action of the autonomic nervous system. As a result of the latter, two things happen:

(a) There is pulmonary vasoconstriction (as shown by the decrease in size of the pulmonary conus observed by fluoroscopy and diminished circulation time) and a tachycardia due to reflexes stimulated in the aortic arch and pulmonary artery. The pulmonary vasoconstriction and tachycardia cause lowered cardiac output, cerebral anemia, and giddiness.

(b) Generalized arteriolar constriction, as shown by the rise in distolic blood pressure, leading to cerebral anemia and again giddiness.

It is important to note that normal patients who change from the supine to erect position have a decreased blood flow to the right auricle which results in reflex autonomic stimulation. However, patients with FCVD suffer from an excessive autonomic stimulation which produces exaggerated responses instead of normal ones. The reason for this extraordinary sympathetic nervous system response is not apparent.

Sweating:

Typically, these patients sweat chiefly from the armpits, palms and feet. The extremities were furthermore cold, not warm, and the skin is pale white or mottled purplish. This is precipitated often by emotional excitement. While examining the patient, one will see lines of sweat running down the axillae or medial aspect of the deltoid. On shaking hands, cool moist palms are detected and visual inspection will readily confirm the wet palm. The wet palm will occur in a normal individual but usually only in a state of severe nervous excitement. In patients with FCVD, it occurs in the course of every day living and such histories are easily obtained; one might emphasize again that psychic tension will elicit or aggravate this manifestation. The cool wet palm is not dependent on environmental temperature. List and Peet (13) have termed this circumscribed distribution of perspiration "emotional sweating" and consider it to be of hypothalamic genesis. Patients with hyperthyroidism, by contrast, have warm extremities and usually a dry axilla unless the entire body is sweating.

While a normal person may have this type of sweating in states of hyper-excitement, the other features of this disorder may be missing and the sudation does not occur as frequently in the normal as in FCVD.

Sighing:

I should like to place special emphasis on sighing respiration. This is often seen during the interview, although the patient may or may not be aware of it. The inarticulate person may not know what to call it and usually considers it to be "shortness of breath"; actually, what he means is a dissatisfaction with his breath, a feeling of incomplete or inadequate inspiration. Under the fluoroscope, the diaphragms descend so that there is a deep inspiration which is not satisfactory to the patient.

This sighing can be conveniently demonstrated,

as White (14) showed years ago, and which I have repeatedly observed, in the basal metabolism record; the sigh appears as a taller spike, quite different from the usual respirations. Since the usual basal metabolism reading is taken during a six minute period, and since sighing, when present, is frequent, a good number of such spikes will be seen.

The exact cause of sighing is not known. I have seen it during acute grief states, marked emotional fatigue, after virus infections, and especially during an active menopausal syndrome. I believe it is a result of hypothalamic stimulation.

Tremors:

This is best seen in the outstretched hands. It is arrhythmic in that the tremors are irregular and do not follow a symetrical pattern. It differs from the rapid sustained tremors, having a small excursion, which is seen in hyperthyroidism. In the latter, Friedman believes that the tongue has a fine tremor while in FCVD there is no true sustained tongue tremor. The tremor of the fingers does not interfere with their function.

Hyperventilation Index:

An objective test is available for distinguishing functional or neurogenic tachypnea and dyspnea from that due to organic cause. This consists of comparing breatholding ability before and after a period of hyperventilation. After a deep inspiration, the patient holds his breath as long as possible and the time is clocked with a stop-watch. After allowing several minutes for return to normal, the patient breathes rapidly and deeply forty five times at the rate of close to one breath a second. Breathing is done thru the nose. At the end of hyperventilation, the time during which the breath can be held is again clocked. The breatholding time after hyperventilation divided by the breatholding time without hyperventilation (expressed in seconds) is termed the hyperventilation index (3). Thus if the numerator is 100 seconds and the denominator is 75 seconds, the hyperventilation index, or H.I., is 1.34. The range of this test is as follows:

	H.I.
Normal	1.5
FCVD	
a. without dyshreahyspnea	1.5
b. with dysphreahyspnea	0.9
Organic heart disease	1.5
Organic heart disease plus FCVD	0.9

This test is important because it apparently aids in the detection of respiratory disorders not due to structural changes in cardio-respiratory system. In addition, it is quite easy to perform. It is never abnormal or positive when organic heart disease alone is present. It is objective in that it is performed by the physician but it does require careful instruction and encouragement so that the patient will hold the breath as long as possible. The dyspneic patient with FCVD also develops a tachycardia during and immediately after the test, the pulse increase amounting to about 50% more than the control. This aids in distinguishing malingerers. In addtion, persons with a positive test often develop giddiness, cold hands and feet, sweating, hand tremors etc. after the test. Friedman (3) found a normal hyperventilation index in intrinsic pulmonary disease and no change in the index after breathing pure oxygen or oxygen with carbon dioxide. He has also noted that patients with an anxiety neurosis have a normal index, except during the first three days following military combat. I have checked the H.I. during an anxiety state at lease thirty times and have also found it to be normal.

It may well be, although it is difficult to prove, that hyperventilation, which stimulates the afferent fibers in the vagus nerve, provokes hypothalamic discharge causing the sensations discussed above but especially the dyspnea which the patient usually associates with heart disease.

Episodic neurogenic discharge:

Individuals with FCVD do not always or at any one time have the symptomatology described thus far. Typically, these manifestations appear in bursts or paroxysms. The precipitating factors are not always clear; indeed, often there is no precipitating factor so that the patient looks dismayed or apprehensive. The attack, termed episodic neurogenic discharge (3), may have the following forms:

A—Cardiovascular (Rapid onset)
1) Cardiac Arrhythmias plus:
   a) Peripheral Vasoconstriction
   b) Accentuation Hand tremors
   c) Excessive Palmar and Axillary Sweating
2) Fever

B—Respiratory (Slow onset)
1) Tachypnea
2) Dyspnea-Sighing
3) Plus Cardio-Vascular manifestations

4) Fever
C—Peripheral Neurogenic
1) Accentuation Hand tremors
2) Palmar and Axillary Sweating
3) Peripheral
D—Cerebral
1) Syncope

This is really a recapitulation of the symptomatology of FCVD but the above outline may make it clearer.

Psychosomatic aspects:

As was well recognized by Friedman (3), and which I have noted myself, the following outstanding features may be seen:

(1) Mental and physical sluggishness. When left alone, these patients lead a static existence. Hospitalized patients are apt to lie in bed and do nothing. They have few complaints about life. They have neither zest nor fire nor ambition. At times they seem overactive but that is largely because they work inefficiently or, as Alvarez has phrased it, "spend ten dollars worth of energy on a five dollar job."

(2) Decrease in emotional range: Particularly with respect to the emoton of anger, the latter is less easily induced, is more transient, and, when present, is accompanied by more intense autonomic or sympathetic discharge.

(3) Difficulty in concentration: This applies particularly to reading. Patients will notice (although it may have to be brought to their attention) that they will read a paragraph in a book or paper without retaining it; they often ascribe this to mental fatigue.

(4) Disinterestedness and unawareness of environmental conditions. They are not much interested in anything outside themselves. This is not a matter of egocentricity but rather a lack of curiosity about affairs which concern their family or friends.

(5) Partial loss of recent memory function.

These alterations may be explained by an incompetence or inadequacy of the higher cerebral coordinating centers. If this is true, then cortical control over the hypothalamus is diminished and manifestations of hypothalamic discharge, which are ordinarily suppressed, blossom out.

Possible Etiologys

Friedman (3) has advanced the hypothesis that FCVD originates from the hypothalamus. He has reviewed experimental and clinical evidence indicating that the followng symptoms can stem from disorder or stimulation of the hypothalamus: tachypnea, dyspnea, sweating, tachycardia and cardiac arrhythmias, fever, sighing, neurogenic discharge, and peripheral vasoconstriction. Erickson (15) and Grinker (16) have described this in man. These manifestations belong to derangements or overexcitation of the sympathetic nervous system, and most of the nuclei of the latter are in the hypothalamus. It seems likely that the somatic and visceral manifestation of FCVD are due to hypothalamic disfunction. But the hypothalamus, like the thyroid, is under control of other centers, namely, the cerebral cortex. The cortico-hypothalamic balance can obviously be upset by decrease in cortical control, extrinsic factors, e.g., extremely severe emotional stimulation whch overwhelms the cortex, or the hypothalamus itself overcomes cortical control by augmented automaticity.

The diminuation in cortical control over the hypothalamus, or cortical recession as Friendman terms it, is indicated by the personality changes whch these patients have.

Differential Diagnosis:

The following important conditions, not listed in any order of importance, should be considered in differential diagnosis:

(1) Hyperthyroidism: elevated basal metabolism and blood iodine, usually absent axillary sweating, tachycardia under basal conditions, exopthalmos, warm extremities, normal H.I. test, usually absent fever, therapeutic response to iodine, and the presence of an energetic dynamic personality.

(2) Menopausal state: onset of symptoms at the menopausal age without a previous history of episodic or energetic discharge, normal hyperventilation index (which I have checked many times), absence of fever or the typical FCVD pattern, and good response to estrogen therapy.

(3) Angina pectoris: in addition to the discussion on precordial distress, it is worth noting that the electrocardiographic changes found in angina are not a secure means of differential diagnosis, for Wendkos (17) has found similar changes in emotionally labile individuals. However, these alterations can be abolished by change of position or by ergotamine.

(4) Addison's disease: the presence of low blood pressure, loss of weight, pigmentation of the gums and skin, decreased serum sodium and increased serum potassium, decreased output of 17-ketosteroids, and response to appropriate medication should make the differential diagnosis.

(5) Hyperinsulinism: this may be difficult to differentiate especially since patients with FCVD may show glycosuria when under severe emotional stress. Serial blood sugar determinations or blood sugar tolerance curve wil lmake the diagnosis.

(6) Hyperventilation syndrome: the symptoms may be exactly the same as those of FCVD. However, the absence of personality changes and the presence of low blood calcium and tingling in the extremities are useful distinguishing points. The emotional background and history is often quite different from that of FCCD.

It should be mentioned that FCVD exists in acute and chronic form. It is very likely a chronic disease, the acute form being only an exacerbation. The symptomatology of the acute form may be seen in other states besides those listed under differential diagnosis. It most typically occurs in convalescence from acute infections, especially virus infections such as influenza, or after prolonged medical or surgical illnesses. Here autonomic discharges occur but such patients do not have either episodic neurogenic discharge or personality alterations; and furthermore these symptoms disappear without recurrence. In the patient with true FCVD, recrudescences occur frequently and with ease. I recall a fellow officer convalescing from a severe case of dengue fever. He had served in a combat outfit before joining our hospital and was a good soldier. He had all the symptoms of acute hypothalamic discharge. He had no previous or subsequent history of hypothalamic disturbance. In FCVD there is usually (I am tempted to say invariably) evidence of similar symptomatology in the patient's past life.

The reader must undoubtedly be thinking that this description of FCVD resembles any anxiety neurosis with predominant cardio-respiratory reference. This is probably so since the anxiety state also has evidences of autonomic, or specifically sympathetic, discharge. However, I know of no anxiety neurosis which is constantly manifested by one or more or all of the symptoms discussed above, which symptoms often recur with or without predisposing cause. Anxiety neuroses in any one patient may have at one time predominant cardiac reference, at another time gastrointestinal or genital-urinary reference. FCVD may be accomplished by symptoms outside the cardiac territory but the patient complains mostly, but not entirely, about cardiac symptoms.

As already intimated, the prognosis is poor because the symptoms may return with or without a precipitating cause. The treatment is frankly most discouraging; undoubtedly, many of these patients can be benefited by psychiatric care. I cannot say whether this should be psychoanalysis. A good physician can do much with regard to altering or removing environmental, social, marital, or personal problems which he has found will precipitate or intensify this syndrome.

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CLINICAL REVIEW OF THE MECHANICS OF THE LOW BACK AND ITS RELATIONSHIP TO LOW BACK PAIN

With Special Reference to the Intervertebral Disc

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This presentation is an attempt to correlate the theoretical, pathological, and clinical knowledge of low back pain resulting from mechanical causes. The subject has initiated much controversial literature over a period of years, and many issues have not as yet been settled.

For a better understanding of the mechanical causes of low back pain, with or without sciatic pain, it is necessary to recognize certain anatomical variations and to appreciate their clinical importance. Resulting symptoms are in proportion to abnormal stress and pressure exerted on the structures capable of producing pain. To facilitate discussion these mechanical conditions of the low back have been divided into two groups.

Group I

The first group comprises those conditions with demonstrable bony defects, abnormalities, and variations from alignments considered as normal.

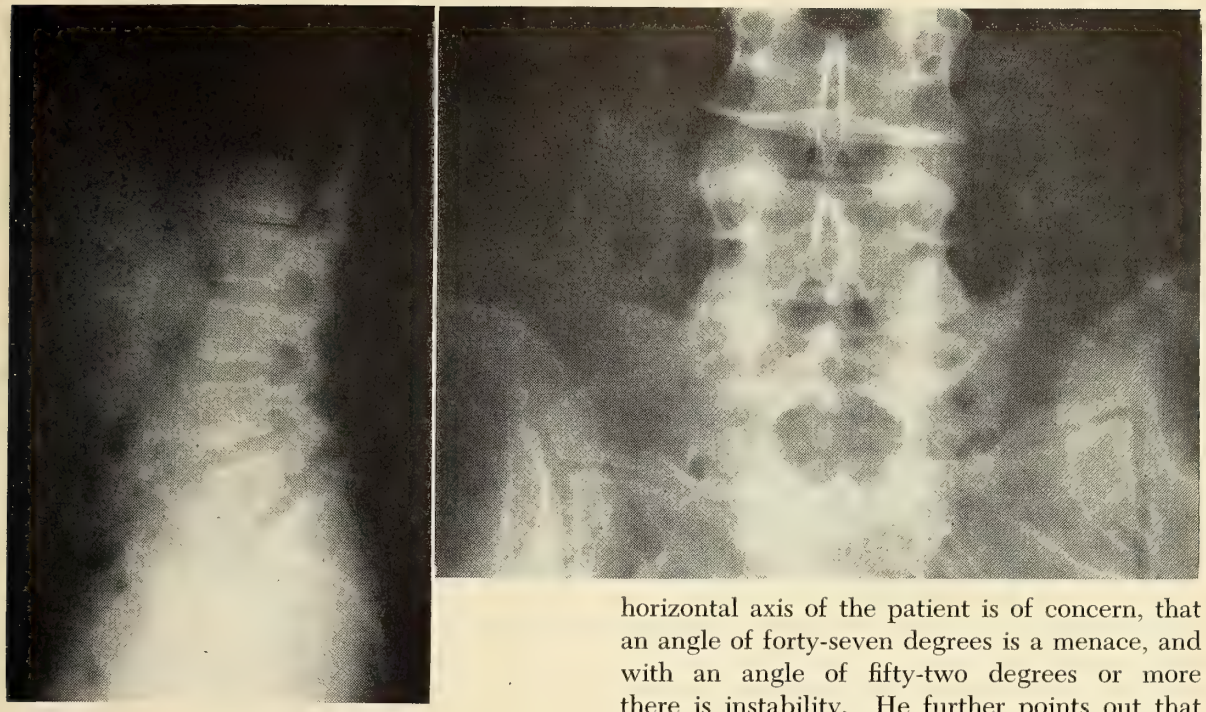
Spondylolisthesis. Spondylolisthesis has been a subject of interest since 1852. At that time Killian termed forward displacement of a vertebral body, "spondylolisthesis," a word of Greek derivation which means gliding of a vertebra. Spondylolishthesis results from a break in continuity of the neural arch and was described by Killian as a clinical entity. The etiology has not definitely been established, but it is generally thought to result from birth or infantile trauma. Hitchcock and Brailsford have shown that progressive forward displacement of the vertebral body, most commonly the fifth, does occur; and this gradual displacement may account for the acute symptoms seen with spondylolisthesis. The symptoms are usually of a chronic nature, aggravated by activities or positions which throw an added strain on the supporting soft tissues. With a forward displacement of the vertebra one would anticipate changes in the intervertebral disc with an anterior displacement of the nucleus pulposus. However, posterior protrusions of the nucleus do occur as pointed out by Myerding, and with posterior protrusion compression of the nerve roots could cause sciatic pain associated with spondylolisthesis. Statistical studies of abnormalities of the low back show a variance in the occurrence of spondylolisthesis from 0.3% to 5.19%. Symptoms caused by forward displacement of the affected vertebra are a result of the instability created by changes in the intervertebral disc rather than from the amount of displacement of the vertebral body.



(Figure 1)

Spondylolysis. Spondylolysis represents a separation of the continuity of the neural arch without demonstrable displacement. Symptoms, as in spondylolisthesis, will be dependent upon loss of bony stability which causes an added strain on the surrounding structures or resultant changes in the intervertebral disc. For confirmation of the diagnosis three quarter x-ray views of the spine demonstrating the facets are of value.

From the Department of Orthopedic Surgery of the Scott & White Clinic, Temple, Texas.
Presented at Annual Meeting, Arizona Medical Association, Phoenix, May 1, 2, 3, 1950.



(Figure 2)

Sacralization. Sacralization represents an enlargement of the transverse process of the last lumbar vertebra. This enlargement may be present on one or both sides of the last lumbar vertebra, and may vary from enlargement of the transverse process to incorporation of the process into the sacral wing. It is referred to as transitional because it is neither truly lumbar nor truly sacral in type. The clinical significance of this developmental anomaly is a degenerative arthritis in the pseudo-arthrosis on the sacral wing or illiae. It may be demonstrated roentgenologically by hypertrophic arthritic changes in the false joint. Unilateral union to the sacrum does not preclude motion or symptoms. If the opposite transverse process articulates with the sacrum there is an associated narrowing of the lumbosacral joint, and there may develop a degenerative arthritis with marginal lipping in the sacral pseudo-arthrosis.

(Figure 3)

Lumbosacral Angle. The lumbosacral angle refers to the inclination of the superior surface of the first sacral segment to the horizontal plane. No definite angle has been established as normal because of the variation within the stable range of motion, but an angle of forty-two degrees (42°) is thought to be within the range of stability. However, Ferguson has pointed out that an angle of forty-two degrees from the horizontal axis of the patient is of concern, that an angle of forty-seven degrees is a menace, and with an angle of fifty-two degrees or more there is instability. He further points out that when the center of gravity of the trunk, as represented by a vertical line through the center of the body of the third lumbar vertebra, passes more than one-half inch anterior to the anterior margin of the first sacral segment there is instability; when this line passes more than one inch to the anterior margin of the first sacral segment instability is severe. With an increase in the lumbosacral angle there is an associated increase in lordosis of the lumbar spine; this in turn increases the stress on the lumbosacral facets and the demand made on the muscles and ligaments of the low back in support of the articulations. Symptoms, resulting from this unstable position of the sacrum, may be deferred until the period of life is reached in which there is loss of muscle tone and usually an increase of body weight. Acute symptoms may result from direct or occupational trauma. With an associated anamalous positioning of the facets degenerative changes in the posterior articulations may occur, thereby increasing the disability. Brailsford, writing on the lumbosacral angle, mentioned the fact that some authors felt that there are two different muscle functions in the back. One function is that of maintaining postural tone, and this maintains the erect position without effort or fatigue. The second muscle functions is that of movement which may be called upon when postural tone fails and this leads to fatigue and pain. With fatigue and pain lumbar lordosis

is increased and the intervertebral joints are carried to the limit of their motion. As an example Brailsford cites patients who feel this strain after a prolonged rest in bed. This thought seems worthy of consideration.



(Figure 4)

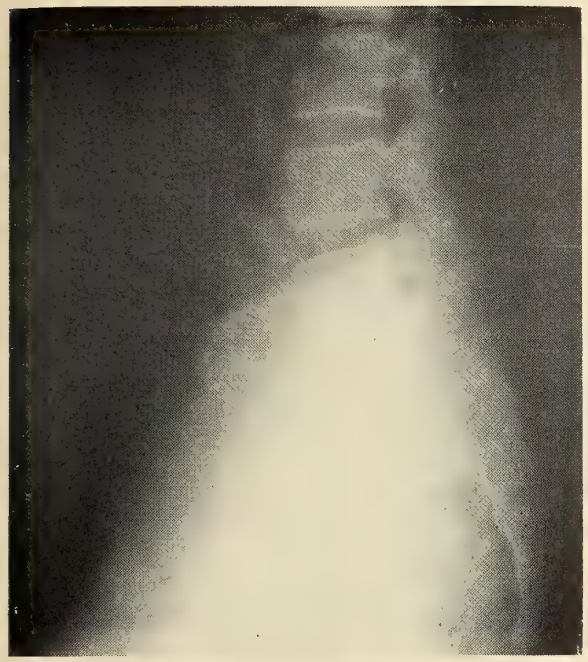
In the preceding group of possible mechanical causes of low back ache, theoretically sound and clinically proven over years of observation, the mechanical fault can be visualized roentgenologically and its adverse potentialities understood.

Group II

The second group includes those conditions which result from mechanical changes in the component parts of the intervertebral disc. Symptoms may be produced directly, or secondarily through a changed relationship in the surrounding bony structures. Changes in the intervertebral disc should be suspected in those patients with low backache whose clinical history, examination, and x-rays fail to disclose a suggestive cause of the symptoms. This type of patient is usually seen later with definite clinical and roentgenological evidence which points to one of the conditions resulting from changes in the intervertebral disc. This clinical observation is supported by the studies of Ghormley, Coventry, and Kernohan. They described progression of the components of the intervertebral disc through the second decade of life. Following the second decade of life the component parts of the intervertebral disc show regression with a gradual increase in degenerative changes. In the advanced decades there occurs conspicious fissuring of the annulus fibrosus and fibrous tissue replacement of the nucleus pulposs.

In 1947 in a symposium on the intervertebral disc and its relationship to sciatic pain, Steindler sounded the keynote of the possible cause of low back pain with or without sciatic pain. And I quote, "During the process of degeneration of the disc, and as a result of it, the equilibrium between the disc and the longitudinal ligamentous system is destroyed, and this disturbance is only incompletely compensated for by arthritic ledges and buttresses. The result is that the junction between the vertebral bodies is loosened; and stress is placed, therefore, upon the supporting ligamentous and muscular system." As a result of this disturbed equilibrium the low lumbar spine is most receptive for changes in its bony relationship. The rationale of this observation is demonstrated in the conditions discussed under mechanical changes which result from changes in the intervertebral disc. In 1945 Key stated that "in practically all patients with idiopathic low back pain the cause of the pain is within the spinal canal and that in over 90 per cent of the cases this is a lesion of the intervertebral disc."

Narrowing of the Intervertebral Disc Space. The process initiating narrowing in a receptive intervertebral disc space is trauma. Trauma, which may be acute or chronic in nature, may cause a lessening in the height of the intervertebral disc, and a changed relationship of the articulations. This narrowing has its effect on the articular cartilage, synovial covering, and supporting ligaments. Here, as in any joint with abnormal function, degenerative arthritis develops. Putti and Longroscino have found arthritic changes in the posterior articulations in the spines of all individuals over thirty years of age. As a result of these arthritic changes in the posterior articulations, some authors in the past have attributed such changes to abnormally placed facets. However, one wonders if in these assumptions the cart has not been placed before the horse. Individuals with abnormally placed facets, particularly the asymmetrical type, should be more susceptible to changes following intervertebral disc changes, and studies indicate that there is a slightly higher incidence of so called anamolous facets in patients complaining of low backache.



(Figure 5)

Posterior Displacement of the Fifth Lumbar Vertebra. Another anatomical change of the fifth lumbar vertebra, described as posterior displacement of the fifth lumbar vertebra, results from subluxation of the inferior fifth lumbar facets and can only occur with some disturbance of the intervertebral disc. Fletcher reports that in 30 per cent of his cases with posterior displacement of the fifth lumbar vertebra there occurred narrowing of the intervertebral space. Ghormley, Coventry, and Kernohan have shown that narrowing of the intervertebral disc as a result of the degenerative process comes from either dessication and necrosis of the nucleus pulposus or a rupture of the annulus fibrosus with extrusion of nuclear material. With the occurrence of either condition the supporting structures between the two intervertebral cartilage plates are lost, and the ground work is laid for disturbance in the mechanics of the low back.

(Figure 6)

Intervertebral Herniation. At times an acute backache is the result of acute herniation of the nucleus pulposus into the intervertebral body. This occurs usually following trauma and results in an intervertebral fracture. Early x-ray examinations are usually negative, but subsequent roentgenological examination will reveal a zone of intervertebral calcification. This calcification should correspond to an intervertebral herniation of the nucleus pulposus with a surrounding zone of bony reaction.



Posterior Herniation. Posterior herniation or bulging of the intervertebral disc is well recognized clinically and some authors feel that it is the cause of practically all sciatic pain. Posterior protrusion of the intervertebral disc without compression of the nerve roots is capable of producing low back pain. However, if it persists over a sufficient period of time, nerve root compression should be anticipated eventually. Clinically these patients present severe, acute pain on motion; so severe at times one might expect to find the presence of a destructive process. The



(Figure 7)

history, clinical, and roentgenological examinations should exclude such a process. Sciatic pain, the usual indicator of a posterior protrusion, usually is unilateral, but may be bilateral. If bilateral it is usually more severe on one side. For confirmation of the posterior defect, myelography, a comparatively easy examination in the majority of instances, is usually diagnostic. Frequently at the time of surgery, a small or questionable defect demonstrated by myelography will be found to be a massive protrusion. This discrepancy in the size of the defect revealed by myelography and the actual size of the protrusion found at the time of surgery may result from one of several causes such as narrowing of the dural sac, and an unusually wide neural canal in its side to side diameter. A narrow antero-posterior neural canal would require very little protrusion of the nucleus to result in nerve root compression. An unusually wide neural canal alone or in combination with a narrowing of the dural sac may be the cause of a negative myelogram in the actual presence of a protrusion of the nucleus pulposus. Elevation or amputation of the nerve root and a thinning of the intraspinal media at an intervertebral level are sufficient indications for exploration provided the clinical symptoms justify such a procedure.

(Figures 8, 9, 10, & 11)

At times the typical clinical picture of posterior protrusion of the intervertebral disc is seen in which no abnormality of the intervertebral disc can be demonstrated or any cause for the symptoms found.

Badgley and Steindler in a discussion of such a condition feel that the sensory nerve supply of the capsules of the facets could produce pain stimulation, which through the primary posterior division could return to the nervous system and produce pain through the dermatomes of the involved nerves. This corresponds with the pathway of sciatic radiation, usually the fourth and fifth nerves. Relief of sciatic pain in many instances has been obtained by decompression of the nerve root alone, or in combination with a fusion operation; or by employing the fusion operation alone. Relief obtained by fusion can be explained. However, relief from decompression of the nerve root alone without fusion is difficult to explain unless the ligamentum flavum is found to compress the nerve root. In narrowing of the antero-posterior plane of the neural canal, hypertrophy of the ligamentum flavum could result in nerve root compression. In regard to the controversal discussion of bone grafting following removal of the protruded intervertebral disc it seems indicated both theoretically and clinically if the foregoing discussion is accepted.

FIG. 8



FIG. 9



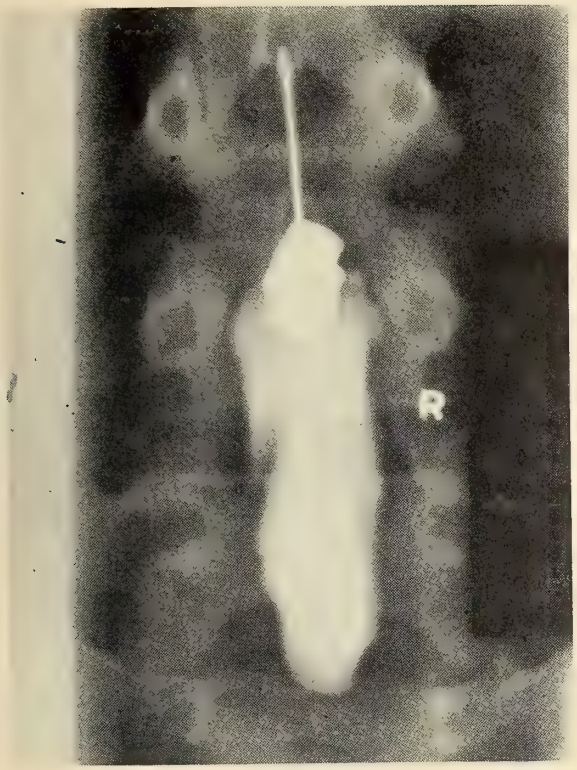


FIG. 10

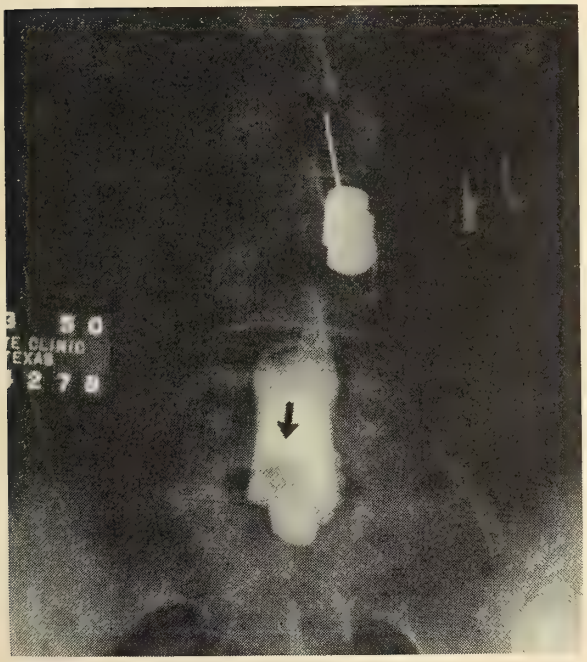


FIG. 11

Postoperative Complications

In our enthusiasm for any surgical procedure we should be cognizant of postoperative complications. We have seen two types of postoperative complications following the removal of a protruded intervertebral disc. In one type of complication acute spasm in the low back occurred on approximately the tenth postoperative day. X-ray examination several weeks later demonstrated bony changes suggesting osteomyelitis. If recognized, and a diagnosis must be made clinically in its early phases, pain can be alleviated by the application of a body cast. In the two cases we have seen, the clinical course, other than the terrific pain from spasm, was not alarming. No surgical drainage was indicated, and there was no apparent response to antibiotics. In both instances penicillin was administered postoperatively, being discontinued on the fifth postoperative day. In one instance penicillin therapy was reinstituted with no apparent benefit. Both of these patients have gone on to spontaneous intervertebral fusion. However, it was though that the postoperative bone graft with its earlier fusion shortened the period of discomfort.

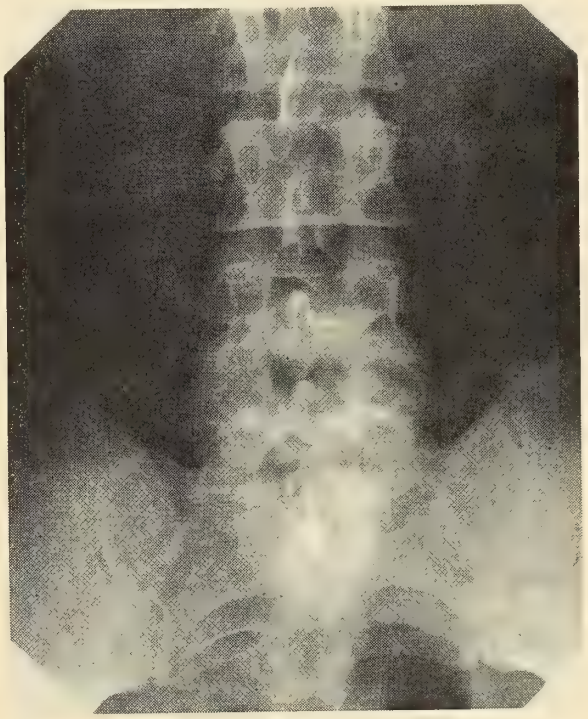


FIG. 12A

(Figure 12, A & B; Figure 13, A & B)

The second type of postoperative complication also consisted of intervertebral changes, but presented a different clinical course. In these patients localized back pain developed at the side of the removed protruded intervertebral disc several weeks to several months after the opera-



FIG. 12B

tion. There was an absence of both spasm and destruction of the body of the vertebra adjacent to the disc, and bony changes resembled those seen in an aseptic necrosis. Late spontaneous intervertebral fusion also occurred in this group, but symptoms were relieved when fusion of the postoperative graft was obtained.

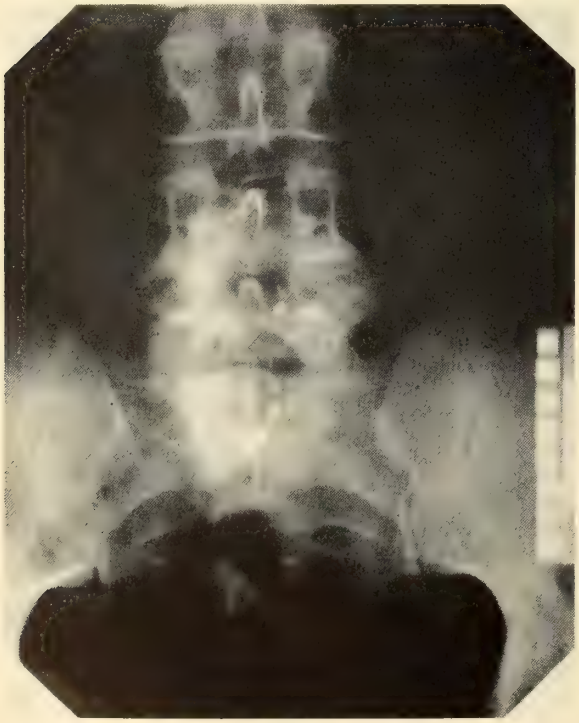


FIG. 13A



FIG. 13B

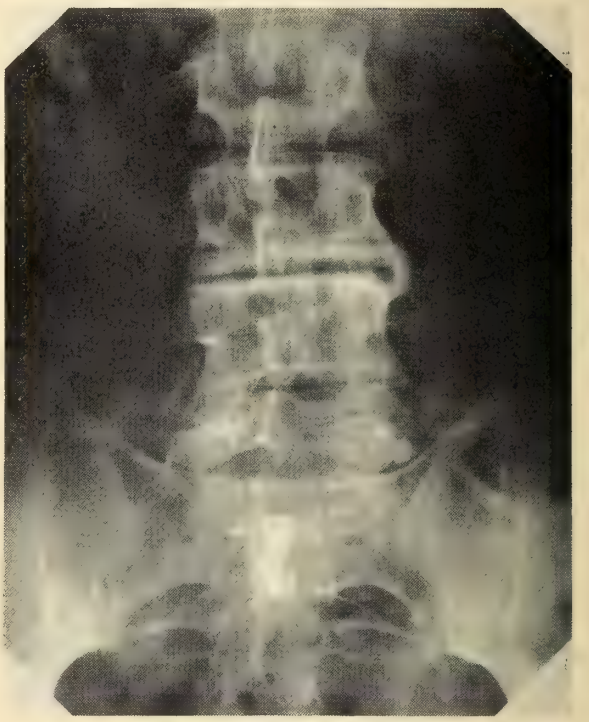


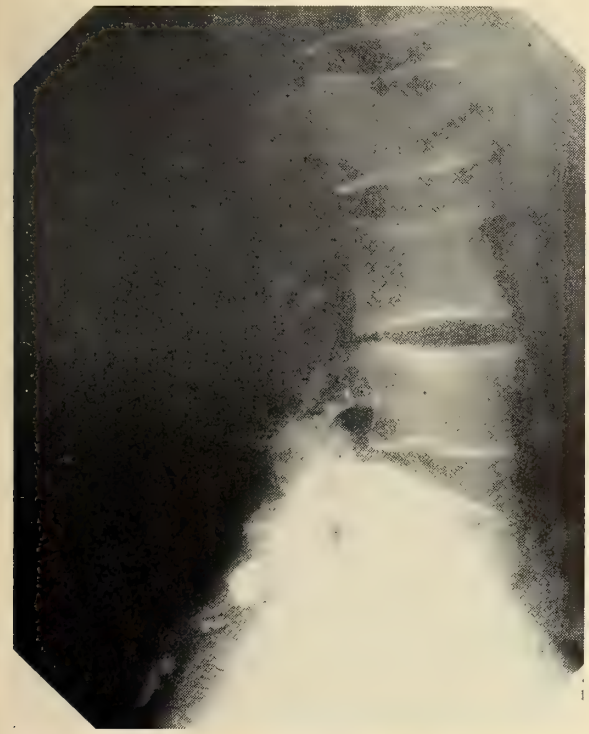
FIG. 14A

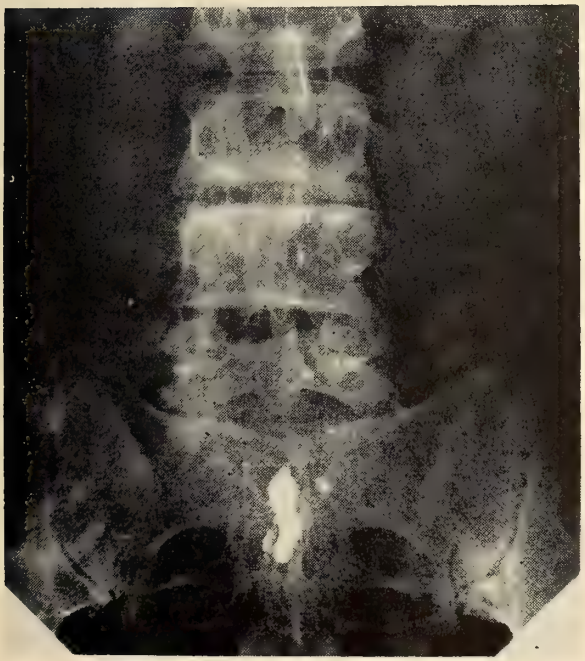
(Figure 14, A & B; Figure 15, A & B)

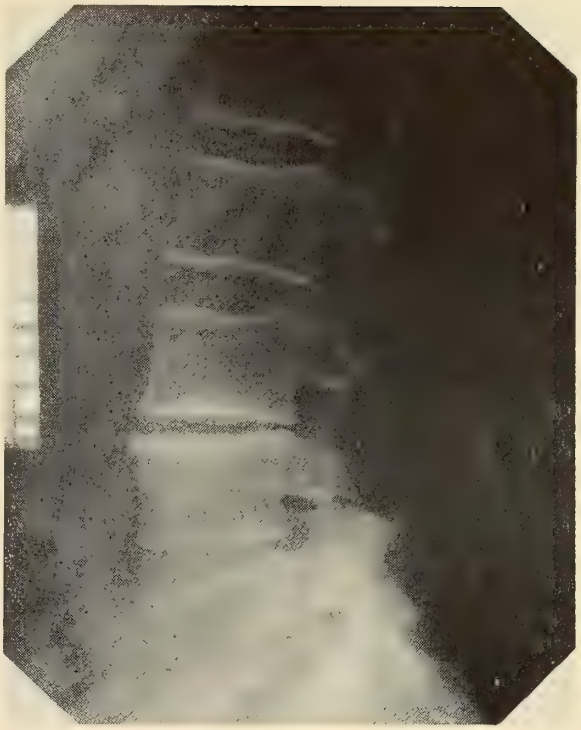
Rarely, there may be an associated causalgia-like state of the foot on the affected side in herniation of the nucleus pulposus. Although the sciatic pain is relieved by removal of the herniated disc the causalgia-like state of the foot remains. However, this condition responds well to para-sympathetic procaine block. This para-sympathetic block has also been used effectively

in patients complaining of sciatic pain postoperatively. In our experience this type of postoperative sciatic pain is intermittent in character and usually occurs at night.

The mechanical causes which appear infrequently, such as hemivertebra and hemangioma, etc., have been purposely omitted from this discussion as they so rarely enter into the low back problem.







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LEGENDS

Figure 1. Lateral roentgram of the lumbar spine showing spondylolisthesis of the fifth lumbar vertebra with narrowing of the intervertebral disc.

Figure 2. Lateral roentgram of the lumbar spine showing spondylolysis of the neural arch of the fifth lumbar vertebra and questionable slipping of the fifth lumbar vertebra.

Figure 3. Anteroposterior roentgram of the lumbar spine showing bilateral sacralization of the fifth lumbar vertebra.

Figure 4. Lateral roentgram of the lumbar spine with lines added to demonstrate unstable lumbosacral angle.

Figure 5. Lateral roentgram of the lumbar spine demonstrating narrowing of the lumbosacral interspace.

Figure 6. Lateral roentgram of the lumbar spine with superimposed lines to demonstrate posterior displacement of the fifth lumbar vertebra on the sacrum with narrowing of the lumbosacral interspace.

Figure 7. Lateral roentgram of the lumbar spine demonstrating intervertebral herniation of the nucleus pulposus.

Figure 8. Roentgram of the lumbar spine with pantopaque in situ demonstrating the typical herniation of a nucleus pulposus at the fourth interspace.

Figure 9. Roentgram of the lumbar spine with pantopaque in situ demonstrating amputation of the first sacral nerve root.

Figure 10. Roentgram of the lumbar spine with pantopaque in situ demonstrating elevation of the first sacral nerve root on the left side.

Figure 11. Roentgram of the lumbar spine with pantopaque in situ demonstrating central defect noted by thinning of the oil column in the midline.

Figure 12. A. Anteroposterior roentgram of the lumbar spine four weeks postoperative demonstrating changes of the fourth and fifth lumbar interspaces.

B. Lateral roentgram of the lumbar spine four weeks postoperative demonstrating changes of the fourth and fifth interspaces.

Figure 13, A. Anteroposterior roentgram of the lumbar spine six months postoperative showing spontaneous fusion of the fourth and fifth lumbar interspaces.

B. Lateral roentgram of the lumbar spine six months postoperative showing spontaneous fusion at the fourth and fifth lumbar interspaces.

Figure 14, A. Anteroposterior roentgram of the lumbar spine three months postoperative showing intervertebral changes between the third and fourth lumbar interspaces evidenced by narrowing and increased density of adjacent vertebrae.

B. Lateral roentgram of the lumbar spine three months postoperative showing intervertebral changes between the third and fourth lumbar interspaces evidenced by narrowing and increased density of adjacent vertebrae.

Figure 15, A. Anteroposterior roentgram of the lumbar spine demonstrating spontaneous fusion.

B. Lateral roentgram of the lumbar spine demonstrating spontaneous fusion.

GONORRHEA ACQUIRED VIA RECTAL INTERCOURSE: A CASE REPORT

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Thomson[1] in reviewing the literature concerning gonococcal infections of the anus and rectum, mentions that Horand (1884) reported eight cases of ano-rectal gonorrhea which were caused by direct spread from the genitals; that Tuttle (1893) reported three cases where gonococci were demonstrated microscopically in rectal pus; and that Bumm (1894) is credited with definitely demonstrating the gonococcus in purulent rectal discharges. Thomson[1] also cites the statement of Griffon (1897), "Direct infections of the rectum from perverted sexual intercourse is rather rare in women but occurs more frequently in men." Thomson[1] also mentions, however, that "Verchere (1894) maintained that this direct infection" (i.e. of women) "was by no means rare, as he ascertained that few prostitutes, if any, resisted such perverted sexual intercourse and he declared that the habit was quite common." Pelouze[2] states: "Though largely a disease of the female, there occur among those addicted to rectal coitus enough cases of gonorrhea of the rectum, particularly in detention institutions, to make it a matter of importance even in the male. The disease is extremely rare in individuals who follow normal sex outlets and, when present, usually can be traced to the introduction of a gonococcus-carrying instrument or finger."

Case History

The late R. V. Parlett, M.D., who, at that time was Senior Physician with the United States Indian Service, Tucson, Arizona, submitted a slide prepared from the uretheral discharge of a young Indian boy, approximately 15 years of age. Dr. Parlett's clinical diagnosis of gonorrhea was confirmed by the finding of large numbers of pus cells and characteristic Gram negative diplococci which occurred both intra and extracellularly. At the same time, a culture, obtained by the method of Greene and Breazeale[3] was submitted. After a preliminary incubation, chocolate agar-proteose Peptone plates were inoculated and incubated under 10% carbon dioxide. When subjected to the oxidase test, many oxidase positive colonies were observed. These were immediately inoculated into carbohydrate media. The organisms were Gram negative diplococci which produced acid from dextrose but not from maltose, lactose or sucrose. This definitely established a diagnosis of gonorrhea in the young Indian.

When the boy was questioned, in an attempt to determine the source of his infection, he denied sexual intercourse with any female; he further stated that he did not like girls and did not associate with them. His mother verified this part of his story.

In some manner not known to the authors, the matter eventually was referred to the Tribal Police. Investigators learned that approximately one week before the young Indian had reported to Dr. Parlett, he had been seen entering a clump of bushes near an irrigation ditch with another male Indian of a different tribe. The latter had been suspected of being sexually perverted. Further investigation revealed that at least two persons who lived in the neighborhood had witnessed a perverted sexual act between the two; the young Indian boy had been the "active" party, the other had been the "passive" party. The latter was apprehended, questioned by the Tribal Police and then examined by Dr. Parlett. In the examination, it was noted that the anal sphincter was relaxed and that there was some obliteration of the centrally radiating folds, which Peterson, Haines and Webster[4] state: "has been interpreted as evidence of the passive practice of the vice; but not equivocal evidence." No particular pathological or inflammatory changes, other than a slight discharge, was noted. (Cantor[5] states: "The chronic case may seem grossly normal.")

Smears and cultures were obtained from the anus and rectum. In smears stained by Gram's method, numerous pus cells containing Gram positive and Gram negative diplococci were seen; there were also many extracellular Gram negative diplococci. (Pelouze[2] has pointed out that in such cases, only organisms of typical morphology should be considered, since extracellular Gram negative diplococci are extremely common in the rectum. At least ten percent of the rectal smears show Gram positive intracellular diplococci which cannot be differentiated from the gonococcus morphologically.")

The cultures, prepared as in the first case, and mentioned above, contained a large percentage of oxidase positive Gram negative diplococci which had the characteristic cultural reactions of N. gonorrheae.

As further proof, agglutination reactions were performed by the method of Greene and Breazeale[6]. This method is identical to the method for seralogic identification of the meningococcus, described in "Laboratory Methods of the U. S. Army."[7] Three wax pencil rings are made on a glass slide: in the first is placed a drop of physiologic saline; in the second, a drop of normal horse serum and in the third ring, a drop of polyvalent anti-gonococcus horse serum. If agglutination occurred only in the anti-gonococcus horse serum and not in saline or normal horse serum (it has been stated that the saprophytic and non pathogenic strains of Neisseria are agglutinated by normal horse serum) the cultures from oxidase positive colonies which had fermented only dextrose with the production of acid, were considered as being N. gonorrheae.

It was observed that when suspensions of these two cultures (i.e., from the two Indians) were used an antigens (previously each suspension had been diluted to the same density on the MacFarlane scale) against polyvalent antigonococcus serum, the cultures gave almost identical quantitative agglutination reactions. This suggested,—but of course, did not prove—that the two cultures were of the same type.

Both parties were brought before the Tribal Court and when confronted by the evidence which had been accumulated from these various sources, they admitted that they had participated in a perverted sexual act and were adjudged guilty.

Summary

A case of gonococcal urethritis in a young male Indian was proved clinically, bacteriologically and legally as being acquired via rectal coitus with another male Indian. Gram negative diplococci which morphologically, culturally and serologically were N. gonorrhea were recovered from the urethra of the one and the anus of the other.

The use of a rapid serologic method for the identification of gonococci, from oxidase positive colonies, is mentioned.

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Editorials

MR. EWING'S STATURE

The educational advertising campaign sponsored by the American Medical Association was conducted during the month of October. The advertisements appeared in 11,000 daily and weekly newspapers. Spot announcements were heard over 1000 radio stations. They were attractive, and instructive, and contained numerous well worded, and well planned phrases. There were no personal references. Such words as freedom, the voluntary way, the American way, democracy, were much in evidence. In fact it sounded very much like President Truman's Speech delivered on American Foreign Policy on his return from meeting General McArthur on Wake Island. Yet a little man in Washington in the person of Mr. Oscar Ewing, the Nation's number I advocate of government compulsory health insurance, called it stupid and dangerous. The program was well advertised in advance. The A. M. A. announced that it would spend $1,200,000. Every member of the House and Senate in Washington were sent the complete program in advance, showing the exact amount the doctors of America would expend and in what media. But Mr. Ewing issued a news release that the doctors were embarking on a $20,000,000 smear campaign against the President's health program. At the same time the Hon. John D. Dingall, of Michigan, member of the House of Representatives, and well known co-author of the ill-famed Wagner-Murray-Dingall Bill, rushed to spread the news on the Congressional Record of the $20,000,000 smear campaign. It is to be deplored that the men we select for our public servants should resort to such flagrant disregard of the truth. It is interesting to review Mr. Ewing's life to date. No one could call him a dangerous man. We find that he graduated from Harvard Law School. That he was a big corporation lawyer in New York City until a few years back he suddenly found his way into politics. He has not been aligned with any subversive organizations of the country. No one has called him a communist. However, the medical profession know that the Federal Security Administration, which he heads, harbors a number of well known fellow travelers. But as soon as he landed in Washington he began having delusions. He decided that the healthiest nation on the face of the globe needed compulsory health insurance. Of course this idea was sold to him by some of his subordinates in the Security Administration. Now he has become a one-man's-band trying to convince the people that they cannot afford adequate medical care. That is the main theme of his assertions. He very naively announced in a recent radio broadcast how simple the whole plan would be in just these words. Quote "Everyone would pay a percentage of their wages or income into the government and then when anyone became ill he could select any doctor he wished and the government would pay the bill." Unquote. Then he envisaged himself as a member of the President's Cabinet, in a newly created cabinet post as head of their enormous project as sole dictator of the Nation's health. But Congress has repudiated him twice in this plan. If Mr. Ewing were asked how much of the tax payer's money the Federal Security Administration has spent trying to sell the American Public on his compulsory insurance plan it is very evident that if the total amount could be computed he would divide it by twenty. And his news release of the $20,000,000 smear campaign is about as accurate as the figures and statistics he is using to sell his insurance plan. It seems that we have

reached that particular stage of the campaign when Mr. Ewing and Mr. Dingall and the other advocates of compulsory health insurance have become quite jittery. In fact not many appear to be willing to announce publicly that they favor such legislation. This is a very comforting position for Whitaker and Baxter who have been waging their devastating campaign in behalf of the American Medical Association. In his recent campaign for re-election to the U. S. Senate from our State, Carl Hayden quietly informed several of our profession that from the way he sees things, any bill for compulsory health insurance would never reach the floor of the Senate. This is very encouraging information. And Mr. Hayden speaks with some knowledge as he has been a member of the U. S. Senate for twenty-four years. This does not mean, however, that we can relax for one minute in the program which we have outlined for the education of the public in this Nation. Primarily it is not a program to defeat the socialistic planners, but instead a program to sell the American public on the necessity of Health Insurance. Furthermore, that the Blue Cross and Blue Shield are voluntary plans which return to them what they pay for, and that voluntary plans are their only hope of having the free choice of physicians, and the kind of medical care which is rendered under free enterprise, and is the envy of every other nation in the world.

In spite of Mr. Ewing's vituperative utterances against the doctors of the country, it is not an odd observation that they resent him personally. But on the contrary they entertain some hope for him and others of his type who suffer from such simple mindedness and common delusions. In fact, one branch of the profession specializes in such disorders.

Letter to the Editor

Dear Sir:

In the August, 1950, number of "*Arizona Medicine*" you printed an "Introduction to Dianetics" by Dr. Lloyd F. Smith.

Dr. Smith ably summarizes the theories, practices, and boasts of the dianetic "movement". By implication he briefly mentions its dangers: "At least Hubbard is no piker. He has stuck his neck out, way, way out. 'With the techniques presented in this hand book . . . . (an) intelligent layman can successfully and invariably treat all psycho-somatic ills and inorganic aberrations. By 'inorganic aberration' he seems to mean all neuroses and all psychoses."

Unfortunately, it appears necessary at this time to make this warning emphatically stronger. Dianetics is taking the country by storm; the dianetic bible remains on the best-seller list and dianetic clubs are springing up like weeds in the smallest towns. The "movement" has found followers even in professional circles.

It is no wonder that cases begin to accumulate where definite and perhaps even irreversible harm has been done to patients with this type of hocus-pocus. I have seen one patient where a pernicious schizophrenic reaction was precipitated by exposure to a dianetic reverie. The untrained "auditor" is not in a position to judge which unconscious "engrams" to "clear" and which engrams to leave alone. In other words, the conservatism and hesitancy which accompanies all good psychotherapy is utterly and completely lacking.

In many ways I am reminded of criminal abortions performed without indication by an ill-trained person. The fact that there occasionally might happen to exist a medical indication and that occasionally the procedure is performed without permanent injury to the patient does in no way justify our open or tacit approval.

Like Mesmerism and other fads, dianetics is likely to boast of certain successes. In spite of the fact that a few of the dianetic theories are founded on sound psychotherapeutic principles, the "movement" must be considered as unscientific and dangerous.

Respectfully yours,

OTTO L. BENDHEIM, M.D.
Phoenix

PHOENIX CLINICAL CLUB MASSACHUSETTS GENERAL HOSPITAL CASE 30251

The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A fifty-six-year-old toolroom clerk was admitted to the hospital complaining of increasing weakness.

The patient had been well until a year prior to admission, at which time he noted generalized weakness becoming progressively more pronounced. This was accompanied by gradual weight loss, amounting to 25 pounds. Six months before entry he had severe diarrhea, lasting about two weeks and associated on one ocassion with nausea and vomiting. This was followed by a rise in temperature (105.2°F.) and a diffuse cherry-red erythema over the upper portion of the body. This episode lasted for about three days, the temperature gradually reaching normal. Following it, weakness was more pronounced, and weight loss more rapid.

Because of these symptoms he attended a local outpatient department, where he was found to have anemia (2,500,000 red cells, with 7 per cent reticulocytes). The spleen, but not the liver, was palpable. The urine showed a 4 plus test for albumin, with rare hyaline casts. The stomach content contained no free hydrochloric acid, and was positive for occult blood and lactic acid. Treatment with Feosol, yeast and dilute hydrochloric acid resulted in little improvement and three months later he was finally admitted to a local hospital, where he remained for five weeks. At that time the liver was palpable five fingerbreadths below the costal margin; the spleen was still palpable. The red-cell count was 2,750,000, with 10.5 gm. of hemoglobin; the mean corpuscular volume was 109 cubic microns, the mean corpuscular hemoglobin 38 millimicrograms, and the reticulocyte count 0.4 to 2 per cent. The bleeding, clotting and prothrombin times were normal. The icteric index was within normal range. The serum protein was 8.7 gm. per 100 c.c., with an albumin-globulin ratio of 2. The serum phosphatase was 13 Bodansky units per 100 c.c. X-ray studies of the chest, gastrointestinal tract, long bones and pelvis were negative. A sternal marrow biopsy revealed no characteristic cellular picture, but suggested pernicious anemia. A liver biopsy revealed almost complete replacement of normal tissue cells by dense fibrous tissue in which there was bile-duct proliferation. The liver on peritoneoscopy appeared grossly enlarged and roughly granular.

Following discharge, the patient was treated with yeast and liver by mouth and parenterally with no response, and he was finally admitted to this hospital two months later.

Physical examination revealed a pale man, showing evidence of recent weight loss. A spider angioma was present on the neck. An area of diminished resonance and inconstant inspiratory rales was present at the right base. The heart revealed a soft systolic murmur, not transmitted, over the pulmonic area. The liver edge extended from the right iliac crest to the costal margin in the left midclavicular line and felt somewhat nodular. The lower pole of the spleen was palpable. The prostate was slightly enlarged. There was questionable pitting edema of the ankles.

The blood pressure was 100 systolic, 60 diastolic. The temperature was 99.2°F., the pulse 80, and the respirations 20.

Examination of the blood revealed a red-cell count of 2,570,000, with 8.5 gm. of hemoglobin. The white-cell count was 5700, with 49 per cent neutrophils, 30 per cent lymphocytes, 20 per cent monocytes and 1 per cent eosinophils. There were a few macrocytic red cells. The urine revealed a 4 plus test for albumin, and occasional red cells, white cells and granular casts. A bromsulfalein test showed 30 per cent dye retention. The van den Bergh was within normal limits. The protein ranged from 6.2 to 7.0 gm. per 100 c.c., with an albumin-globulin ratio of 2.1 to 2.5. The blood cholesterol was 122 mg. per 100 c.c., the calcium 10.7 mg., and the phosphorus 4.8 mg. The alkaline phosphatase was 4.8 units, and the acid phosphatase 1.8 units per 100 c.c. A Congo red test was negative for amyloid. The prothrombin time was 22 seconds normal, 16 seconds. A blood Hinton test was negative.

A roentgenographic examination of the chest, a gastrointestinal series and a barium enema revealed no abnormalities, except an enlarged liver and spleen.

On the sixteenth hospital day a peritoneoscopy revealed an enlarged liver, exactly as palpated with a tongue of liver tissue extending down below the umbilicus in the right lower quadrant and flank. The surface was mottled, reddish-yellow and questionably granular; there was a fairly sharp edge. There was no evidence of neoplastic implants. The spleen was about twice its normal size, smooth and dark brown. There was no ascites. The liver was biopsied.

DR. O. O. WILLIAMS:

This patient presents such a complicated symptomatology that it would seem almost impossible to correctly evaluate into a differential diagnosis. Rather than offer a definite diagnosis, I am going to try to offer a pathological process which might account for most of the symptoms physical and laboratory findings.

The onset of generalized weakness of a progressive nature and the gradual loss of weight is indicative of a profound metabolic disturbance. The diarrhea lasting two weeks and associated with nausea and vomiting and a diffuse cherry-red erythema about six months before entrance would seem to be an acute episode not directly connected with the patient's present illness other than to aggrevate the weakness and loss of weight.

In the local outpatient department, a profound anemia was found. This anemia, from laboratory findings was macrocytic and probably hyperchromatic in type. The findings of an enlarged spleen and absence of free HCl in stomach contents further supports the impression of P.A. However, I have never seen 7% reticulocytes in an untreated P.A. unless patient was beginning remission. The progressing symptoms with beginning enlargement of liver and lack of sustained response to liver therapy indicated that a remission of a P.A. was not the cause of the reticulocystosis. During his stay in the hospital the serum proteins were at the upper limits of normal and the A/G ratio was normal. The serum phosphatase was increased suggesting some bile duct blockage. At this time a bone marrow biopsy, if reported correctly, indicated a bile duct metastasis to bone marrow. In view of two later findings, I would have to discard this diagnosis of the biopsy as a mistake of the pathologist, the person who summarized the case or the typist. There are very few cancers which reveal their origin in their metastasis. These are mis-hepatomas, melanomas, epidermoid carcinoma, thyroid cancers of functional character etc. The first can be ruled out as I have never seen a hepatoma metastasize to bone marrow before manifesting itself in the lungs, and some months later x-rays of the chest was found to be normal. However, Hepatoma would account for all symptoms including macrocytic anemia and the liver biopsy might support this diagnosis as would also the rapid enlargement of the liver and this would be a logical diagnosis were it not for the negative chest x-ray. The liver biopsy suggested a cirrhosis of the liver, being finely granular but this rapid and massive enlargement would not have taken place unless accompanied by a malignant primary liver cancer.

The negative clinical and x-ray findings do not indicate a primary carcinoma elsewhere in the viscera. The positive renal findings might suggest a hypermephroma and these may metastasize to bone marrow before manifesting themselves in the lungs. However, the kidney findings cannot be definitely considered indicative of primary renal cancer but are more suggestive of chronic nephritis. The enlarged prostate would seem to be more suggestive of benign hypertrophy than cancer. With the findings one cannot identify a visceral cancer.

The pathological process which might result in all this patients symptoms is a marked disturbance of the reticulo-endothelial system of the bone marrow, liver, spleen and perhaps lymph nodes of the mesenteric or retroperitoneal region. This may be neoplastic or non-neoplastic. The latter suggests amyloidosis, non-lipoid histiocytosis, Christians disease, Gaucher's disease and many others as T.B., syphilis etc. None of these fit the diagnosis. Because of the rapid liver enlargement, loss of weight, increase weakness and profound weakness this would seem to be neoplastic or cancerous in character. One consideration has to be made. Replacement of bone marrow either benign or malignant may result in agnogenic myeloid metaplasia associated with anemia and rapid enlargement of liver and spleen. This occurs in marble bone, myeloid

fibrosis, or cancerous replacement of bone marrow. This is however, usually associated with immature cells in the peripheral blood and no mention is made of such abnormality. It is quite possible that diffuse cancerous involvement of bone marrow associated with agnogenic myeloid metaplasia may be the diagnosis in this case. This condition is sometimes called leucoerythroblastic anemia or non-leukemic myelosis. As has already been stated it may be due to diffuse carcinomatosis but one of the frequent causes is plasma cell myeloma or plasma cell leukemia. Diffuse plasma cell myelosis or myeloma may cause replacement of bone marrow without x-ray findings of rarefactions. It might result in liver and spleenic enlargement, also on the basis of ameloid replacement. All the findings in this case could be accounted for on the basis of myeloma. However, there are insufficient findings to make a positive diagnosis of myeloma, lack of x-ray manifestations, no evidence of Bence Jones protein, no increase in serum proteins and a normal A/G ration. Consequently, I do not believe I can seriously entertain this diagnosis although it appears to be somewhat attractive.

Somewhat related to the above is the neoplastic reticulo-endothelial growths such as reticulum-cell sarcoma, Hodgkin's disease, Aleukemic myelosis or lymphoblastoma. Anyone of these conditions could account for all the manifestations in this case. There is however, nothing in the protocol to indicate which one it might be. Because of the rapid progress of the disease, I would be inclined to reticulum cell sarcoma (Hodgkin's Sarcoma).

While no one can be definite about the case, I would like to summarize it as follows: We have a patient with a profound reticulo-endothelial disturbance, apparently of a neoplastic character, associated with replacement of normal bone marrow and enlargement of liver and spleen. The type of bone marrow replacement would be cancerous in type, with no specific neoplasm being named. It could be carcinoma or sarcoma of the body elsewhere which has metastasized diffusely to bone marrow but is more likely a generalized neoplasm involving all the reticulo-endothelium including a myelosis of the bone marrow. Under the latter would be any of the lymphomas such as aleukemic lymphoid or myeloid leukemia, lymphoblastoma, Hodgkin's disease, reticulum cell sarcoma or plasma cell leukemia or myeloma. Reticulum cell sarcoma is the more likely. My opinion therefore is:

1. Primary cancerous conditions of reticulo-endothelial system, most likely reticulum-cell sarcoma.
2. Metastatic cancer to bone marrow and liver.
3. Primary myeloma of bone marrow associated with agnogenic myeloid metaplasia.

DIFFERENTIAL DIAGNOSIS

Dr. Chester S. Keefer: The patient was fifty-six years of age and had been ill for over a year with constitutional symptoms and loss of weight, increasing fatigability and weakness. In the past there had been one episode of diarrhea of two weeks' duration, during which time he developed a temperature of 105°F., and a diffuse cherry-red erythema over the upper part of the body. I am unable to explain that episode. It has occurred to me that perhaps this man had received some sulfonamide from one of his physicians for the treatment of diarrhea and developed the fever and skin eruption as a result. It is not stated, however, in this record whether that was known. There are few patients who have diarrhea of more than two or three days' duration who do not receive one of the sulfonamides; some of them develop fever and a skin eruption if the drug is continued for a period of seven days or longer.

One might, for the sake of mental exercise, indulge in some speculations concerning what other disorders cause diarrhea and skin eruptions. We know that certain strains of hemolytic Staphylococcus aureus are capable of liberating exotoxin as well as endotoxin and occasionally these patients show a typical scarlatiniform eruption associated with infection. These infections are of short duration, the skin lesions are exfoliative in character, and the gastronintestinal symptoms appear within a short period after the ingestion of food. The common foods that are contaminated by the staphylococcus, of course, are custard pies and the filling of cream puffs. If the organisms grow freely, they liberate an exotoxin and some strains liberate an erythrogenic toxin, which is exceptionally difficult to distinguish from the streptococcal erythrogenic toxin. Antiscarlatinal antiserum will, on occasion, blanch the rash of staphylococcal infection.

When this patient was admitted to the first outpatient department he had an anemia with



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enlargement of the spleen and albuminuria. This anemia apparently did not respond to any form of treatment that was prescribed—iron, yeast and dilute hydrochloric acid. One might expect that the anemia would be refractory to liver but not to the iron or the yeast. On admission to that hospital the anemia was still present and was hyperchromic. The sternal marrow biopsy showed nothing definite but was suggestive of pernicious anemia. The liver biopsy showed dense fibrous tissue, with bile-duct proliferation. That is the picture that one might see in extensive cirrhosis of the liver. With fibrosis, the bile ducts make a frantic effort to proliferate and to join up with the new nodules in an attempt to excrete bile from these cells. I think that we cannot accept that conclusively, however, in light of the fact that the liver increased in size rather than decreased. In any event it seems clear that this anemia was refractory and did not respond to liver, and that it was not an ordinary pernicious anemia.

The physical examination on the last admission says that a spider angioma was noted over the neck. When one finds spider angiomas it is usually suggestive that the patient has liver disease. These spider angiomas attracted attention in the medical literature over twenty-five years ago. If you read about the old descriptions of cirrhosis of the liver they are freely discussed. Then, for a long time no one paid any attention to them, but in the last few years a great deal of interest has again been shown. They are dilated arterioles, and when examined carefully, they tend to occur only on the upper half of the body and, for some curious reason, over the area drained by the superior vena cava. It has been suggested that the disturbances in the estrogenic hormones that take place in liver disease may be responsible for these angiomas. In any event it was noted here that there was a spider angioma on the neck, suggesting that the man had liver disease.

Then, once again, there were enlargement of the liver and spleen, anemia that did not respond and albuminuria. Someone expressed the opinion that this man may have had amyloid disease because of the albuminuria, the big liver and the enlarged spleen. This was a good suggestion, but the Congo red test was negative. A bromsulfalein test showed that he retained at least 30 per cent of the dye, indicating that he had a disturbance of hepatic function.

The x-ray studies were negative except that they showed an enlarged liver. Finally, there was another peritoneoscopy, and they found that the liver was still large; a biopsy was taken, and Dr. Castleman will shortly tell you the diagnosis.

The question that rises in this patient, of course, is. Was this simply a case of cirrhosis of the liver, or was there some process superimposed on the cirrhosis? If one assumes that it was just cirrhosis, it is difficult to explain why the liver was enlarged. One must believe the record, which states that the liver increased in size from the first admission until the time of the biopsy that disclosed the answer. Patients who have an enlarging liver usually have some infiltrating process in that organ. The one type of liver disease that is associated with fibrosis, and even with cirrhosis, and a very large liver is the fatty liver. They may reach enormous proportions, weighing 4000 to 5500 gm. The story in these cases is usually characteristic. The patient is either a heavy gin or whisky drinker, consuming anywhere from a pint to a quart a day over many years. There is no evidence that this was an enlarged fatty liver.

The first examination, with the tender spleen and hyperchromic anemia, certainly suggests that he might have had pernicious anemia, but that was not borne out by the therapeutic test and did not seem to be borne out by the gradual enlargement of the liver. One may encounter a refractory form of macrocytic anemia in patients with cirrhosis of the liver or some disorder of the bone marrow, such as a lymphoma. That naturally raises the question whether this patient might have had a lymphoma with a big liver, a big spleen and an anemia that was macrocytic in type. From the original biopsy, however, there is no evidence that there was lymphocytic infiltration of the liver. The bone marrow showed no changes consistent with the diagnosis of lymphoma. So we have no basis in this record for making such a diagnosis.

It seems to me that the likeliest explanation for this case is that the patient had a cirrhosis of the liver on which was superimposed a carcinoma, but when one makes that diagnosis one is always treading on dangerous ground. There are two forms of primary liver-cell cancer. One

is a hepatoma, in which there is an initial lesion that expands and usually metastasizes by way of the veins, so that there is one large lesion with multiple small or varying sized nodules in the liver, with few metastases elsewhere. The other type of liver-cell carcinoma usually arises from the small bile ducts. There is some evidence in this case that diffuse fibrosis of the liver was present with bile duct proliferation. That is somewhat suggestive that this proliferation of the bile ducts was not just the type that one sees associated with cirrhosis of the liver with disorganization of the tissue. The one point that I cannot explain on the basis of uncomplicated cirrhosis of the liver is the fact that the liver was so large. We know that it was fibrous and that the liver increased in size. These are the points that lead me to suspect that this man had cirrhosis of the liver with a superimposed carcinoma of the bile-duct type. That is the best diagnosis that I can offer; perhaps, in addition, the patient had some degree of nephrosclerosis.

Dr. Benjamin Castleman: The field is still wide open.

A Physician: The patient had diarrhea for two weeks, high fever and a large spleen. The liver increased in size so rapidly, without pain or jaundice, that one might suspect that he had either amebiasis or some other infection that was causing an abscess there

Dr. Chester M. Jones: It seems to me that with an amebic abscess, the patient would have been running a septic temperature.

Dr. Castleman: The chart was flat.

Dr. Wyman Richardson: How about the right half of the diaphragm?

Dr. Laurence L. Robbins: It is normal. About all that these x-ray films do is to confirm that findings of physical examination—an enlarged liver, which extends down over the iliac crest, and a large spleen, which is visible below the costal margin. The only thing that I can add is that there are definitely no varices of the esophagus. The diaphragm is perfectly smooth in outline and shows nothing to suggest lobulation.

Dr. Richardson: The bone marrow was normal?

Dr. Castleman: That examination was done at another hospital. We have only the report.

Dr. Jones saw this patient and said: "I am not convinced that cirrhosis is the answer, although it may be. The lack of fever, varices and ascites and the presence of a big liver make me question the diagnosis of cirrhosis of the liver." Have you any further comment, Dr. Jones?

Dr. Jones: No, except I think that the first biopsy report of fibrosis and apparent bile-duct proliferation does not prove that that was the picture throughout the liver. I do not believe that it was.

Dr. Castleman: Unless a man is expert at taking a biopsy through a peritonescope, he may take a bit of the capsule of the liver, with little underlying tissue, so that the specimen is not a true sample of the liver.

Dr. Jones: The specimen may be a thickened capsule with a few bile ducts, and thus does not give an accurate picture. I do not believe that this biopsy makes or breaks the diagnosis. If it were pure cirrhosis, it would tend to be a fatty liver, as Dr. Keefer has pointed out, or biliary cirrhosis. The description given at the second peritoneoscopy—a smooth or finely granular liver with mottled yellow areas—is not at all unlike what we see in cases of biliary cirrhosis, but it is curious for biliary cirrhosis to show this clinical picture. It does happen, but it is unusual.

Dr. Castleman: How would Dr. Keefer account for the appearance of the liver at the second peritoneoscopy with a diagnosis of cirrhosis and hepatoma? Would they not be easily visible?

Dr. Keefer: That would depend entirely on how far from the surface the hepatoma was. In some hepatomas the original mass is beneath the capsule and does not project beyond the capsule. Although many of them produce large lobulated

Dr. Richardson: It would be useful to have detailed information regarding the blood picture. This was a macrocytic anemia. Pernicious anemia could account for it.

Dr. Castleman: I do not believe that the blood picture as reported gave evidence of pernicious anemia.

Dr. Richardson: The mean cell volume was 109 cubic microns. I do not know where it was done. If it was done in the Baker Memorial Laboratory that would be on the macrocytic side. Ordinarily it should perhaps be more than that before one could be sure that it was really a macrocytic anemia; 120 cubic microns would be quite suggestive, 109 slightly suggestive.

Dr. J. H. Means: I suppose it could be lymphoma although there is no proof of it. He

had a large spleen, anemia and fever on one occasion, all of which is suggestive.

CLINICAL DIAGNOSIS:

Cirrhosis?

Carcinoma of liver?

DR. KEEFER'S DIAGNOSIS:

Cirrhosis of liver, with superimposed bile-duct-cell carcinoma.

ANATOMICAL DIAGNOSIS:

Plasma-cell myeloma involving liver and bone marrow.

PATHOLOGICAL DISCUSSION:

Dr. Castleman: The biopsy of the liver showed no evidence of cirrhosis. The most striking finding was tremendous dilatation of the sinusoids, which were filled with typical plasma cells. This patient, therefore, had plasma-cell myeloma involving the liver.

To confirm that diagnosis a sternal biopsy was done, and this showed that the marrow was almost completely replaced by plasma cells. When that was confirmed a peripheral blood smear was examined by Dr. Richardson, who found plenty of plasma cells.

The urine was examined and found to contain Bence-Jones protein, which had not been looked for before.

The patient died at home three months later, but no post-mortem examination was performed.

X-ray films were taken after the diagnosis was established.

Dr. Robbins: There is nothing in the bones to suggest myeloma.

Dr. Castleman: I suppose that the one clue to the diagnosis was the high serum protein.

Dr. Richardson: It was not particularly high, but perhaps higher than it should have been.

A Physician: How do you account for the fact that the plasma cells were not reported in the bone marrow biopsy?

Dr. Castleman: We simply had the report from the other hospital.

A Physician: Is there a diffuse generalized infiltration, or may it be patchy?

Dr. Castleman: Multiple myeloma is by and large, patchy, as its name indicates, but in the cases in which the bones do not show multiple lesions it is usually a diffuse disease, or what may be called "plasma-cell leukemia." In the patchy type the liver and spleen are almost always normal.



TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By GUILLERMO OSLER, M.D.

If confiidence is to be a factor, the HEALTH INFORMATION FOUNDATION has appointed a Citizens' Advisory Committee which is solid gold ...Admiral Blandy (U.S.N., Ret.) is head of the foundation, and ex-president Herbert Hoover is chairman of the Committee. The new members include Compton of M.I.T., Douglas (Aircraft), Dr. Bridge of Caltech, F. Eberstadt, Mrs. Houghton (Federation of Women's Clubs), Kline of the American Farm Bureau Federation, and L. L. Strauss of Rockefeller Bros . . . They are to investigate the medical services of several typical large towns.

The world's first "ALUMINUM HOSPITAL" is being completed at Bradford, Pa. . . . The outside walls are composed of dull panels of aluminum, a material which has recently been used in the United Nations building, Rockefeller Center, etc. The Hospital also is to have a two-way communications system between many of its beds and the nurses stations, and a central pharmacy which will supply sterile supplies and all except emergency drugs by a speedy dumb-waiter.

The Arizona Blue Shield program has a 94 PER CENT PARTICIPATION by the state's physicians. ....This is notable enough to be given a news paragraph in 'Hospital Management.'

The NEWER ANTIBIOTICS have an extra hurdle to clear compared with their pioneer cousins . . . . They must be tried out on a variety of diseases and bacteria, as was pencillin. They also have to show their worth in cases where penicillin and other drugs have failed, or have produced a bacterial resistance . . . . Terramycin seems to be a good hurdler.

A good brief for resection in cases of DIVERTICULITIS of the colon is presented by Boyden in the Annals of Surgery . . . . He reports 38 partial colectomies. About 95 per cent of those followed for more than one year are living and well. . . . .He advises the use of a radical PARTIAL COLECTOMY, with the colostomy period limited to an average of only four weeks . . . He agrees with Pemberton and Smithwick that these results are a great contrast to the poor late results of medical treatment, or a more temporizing surgical therapy.

Where might one learn to REMOVE VARIOUS TYPES OF STAINS? . . . . The American Institute of Laundering (Joliet, Illinois) will give the information, or the American Hospital Association will arrange to obtain an answer.

LEST WE FORGET DEPARTMENT — 'The Chaser' is a san. paper published at Sanatorium, Texas. It tells of a pioneer Arizona physician in its August, 1950 issue . . . . HIRAM W. FENNER was a specialist in diseases of the chest at Tucson near the turn of the century. He lived from 1859 to 1929, and practiced there for 39 years . . . . Dr. Fenner was an early advocate of artificial pneumothorax, and in 1900 "he prevailed upon the Sisters of St. Mary's Hospital to build a sanatorium which is still operated". He also arranged for the installation of Tucson's first X-ray equipment . . . Now where do you suppose they found all that? Only a few physicians remember him, and he really deserves to have a fund or building named after him.

A map of the United States, showing the shift of PHYSICIAN POPULATION in the past 12 years, is an interesting sight . . . . Arizona has the highest gain (+66%), more than California (54%). . . . . The trend is westward in general, but the source of movement is somewhat surprising. All of the 'minus' states are either on or contiguous to the Mississippi River. Iowa, Missouri, Arkansas, Mississippi, Kentucky, West Virginia, Nebraska, Oklahoma, and North Dakota have lost a lot more doctors than they gained. Kansas and S. Dakota show nearly no gain.

One would almost swear that all the possible variations of chest surgery for tuberculosis had been devised. Now Dr. Richard Overholt, a noted surgeon of Boston, comes up with a style of thoracoplasty which sounds as though it could be a sensation. The name is 'COSTOVERSION THORACOPLASTY'. The ribs are removed as usual, then inverted so that the arc is reversed, and the ends are sutured back in place. One rib is laid along the trough to act as a strut, and sutured to the first rib above and the first intact rib below . . . . The first report tells of three successful and uncomplicated cases, but the fate of the 'planted' ribs is not known . . . . The simplicity of the operation will make a lot of surgeons bite their nails — though it was thought of many years ago. The fixation of the mediastinum prevents paradoxical movement, lessens pain, and improves the collapse. It probably is not the fastest thoracic operation, but may prove out.

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PASADENA, CALIFORNIA

If one uses the weather as a conversation piece, the wheels of science have turned out a new gadget to make speculation more precise . . . A wet-and-dry-bulb barometer, smaller than a pencil, may be carried in the pocket. It gives accurate readings which can be turned into RELATIVE HUMIDITY FIGURES by means of a built-in slide rule.

The question of what stimulant to use, and why, is often raised these days. We must expect a great deal from drugs, but must use them specifically to obtain it . . . An ANALEPTIC is a drug capable of stimulating the central nervous system, and therefore used to overcome a depression of that system. They may be classified as follows: 1. Those which have a PRIMARY STIMULANT action on the nervous systems. They include picrotoxin, metrazol, nikethamide (coramine), and the obsolete strychnine, caffeine, and atropine . . . . 2. Those which act through REFLEXES, chiefly from the carotid and aortic bodies. They include alpha lobeline; camphor, alcohol, and ether (by injection); nose, mouth, and stomach irritants (including ammonia, whiskey, etc.) . . . . 3. Drugs which STIMULATE BOTH CNS AND CV SYSTEMS, and which in overdose produce convulsions, hypertension, and tachycardia. They include the aromatic sympathomimetic amines; those with relatively great CNS effect, such as amphetamine are to be preferred to epiephrine, ephedrine, etc. . . . . 4. Substances which stimulate nerve tissue by the formation of BIOCHEMICAL REACTIONS. They include certain members of the vitamin B complex, as well as pyruvate, succinate and fumarate (of the CH metabolism cycle) . . . The A.M.A. Council of Pharmacy and Chemistry has described the mechanisms by which these analeptics act.

Comment by Mark Twain on the gastrointestinal tract: "Only presidents, editors, and people with tapeworms have the right to use the editorial 'we' ".

The J.A.M.A. report by Graham and Wolf on causes of CHRONIC URTICARIA bears re-emphasis. Few things have been more puzzling than recurrent hives . . . . Allergy, which is said to have nothing to do with the condition, has often been unjustly criticized because it has failed to provide an answer to the problem . . . . The authors have found that every case was associated with a specific, intense emotion — A RESENTMENT at being trapped in a situation. (This emotion differs from hostility) . . . . The urticaria was localized evidence of a more generalized cutaneous vasodilatation.

The Schering Corporation has started a new kind of publication. The first issue of 'MEDICINE IN THE NEWS' was published by them in August 1950. . . . It consists of brief reviews of articles on medical subjects which appear in the public press, chiefly women's magazines, as well as a few books of popular use. . . . It is interesting to look over the literate patient's shoulder, and might be helpful to have tips on the questions they may ask.

I heard a doctor forcefully refuse to have anything to do with a recent project sponsored by the federal health service. His attitude sounded narrow, since the project seemed praiseworthy. . . . The M.D. was firm, however, and stated that he did not trust ANY move of a group (or 'camel') which he said would get into a tent under a pretense and then push the tenant out. The socializers plan all sorts of subsidies in order to accomplish 'health insurance' — and control. They flatter medicine by putting it high on their list, next to banking and electric power. Unquote.

The obstinate doctor could be right, but it is hard to decide on the delimiting line . . . The Chronic Disease section of the U.S.P.H.S., for instance, is planning a routine examination for 12 disorders — the 'MULTIPLE SCREENING' PROGRAM (for tuberculosis, heart disease, syphilis, nutritional deficiencies, sight and hearing defects, malaria, glaucoma, anemia, diabetes, nephritis, and hypertension). . . . This could be wonderful for the public and provide a huge field for physicians, since the findings of the technicians are to be referred for diagnosis. . . . The U.S.P.H.S. is a part of the Federal Security Agency, however, and the boss of this huge outfit is a man named EWING — and nobody needs to be told that he is the chief proponent of socialized medicine, with its changes, controls, and enforcements.

Most hospitals would just love to have money enough to copy the new Goldblatt Memorial Cancer Research set-up in Chicago. . . . Among other firsts they are said to have the first operating rooms which are WIRED FOR RECORDED MUSIC. . . . Patients who have spinal, local, or regional anaesthesia may select one of two programs (classical or popular), and receive the music through earphones during the surgery. . . . Music is said to lessen the emotional disturbance. Sixty-one per cent selected the classical recordings; thirty-one per cent preferred popular music; and 8 per cent apparently refused to be distracted from their malaise. Nearly 80 per cent of the trial group were enthusiastic. ("Have I told you about my operation? The theme song was "Goodnight, Irene'!")


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PERSONAL NOTES

Dr. Lowell C. Wormley, Phoenix, received notification of his selection for fellowship in the American College of Surgeons, August 20th.

Drs. L. C. McVay and *Preston T. Brown,* Phoenix, attended the meeting in Milwaukee, Wisconsin, September 21, 22 and 24th, of the Central Association of Obstetrics and Gynecology.

Drs. Frank Edel, Joseph M. Greer, and *Thomas C. Wilmoth,* all of Phoenix, attended the Southwestern Surgical Congress September 25, 26 and 27th in Denver, Colorado.

The September staff meeting at the Good Samaritan Hospital, Phoenix, was addressed by *Dr. R. J. Antos,* Phoenix, on the subject "Pulmonary Moniliasis, an Established Case with Apparent Recovery". This was discussed from a roentgenologic standpoint by *Dr. E. H. Bregman. W. E. Lox,* PhD., discussed the laboratory workup. *Dr. Karl Harris* then followed with a "Presentation of Three Cases of Foreign Body Granuloma".

Dr. James A. Dolce has been appointed City Health Officer of Phoenix, Arizona. He obtained his medical degree from the University of South Carolina, and a Masters degree in Public Health from Columbia University. He is a fellow of the American Public Health Association, and Certified by the American Board of Preventive Medicine and Public Health. Prior to his coming to Phoenix he was professor of Preventive Medicine and Public Health at the University of Buffalo Medical School, as well as in charge of the Maternal and Child Health in the Erie County Health Department and the Buffalo, New York Health Department.

Dr. John Eisenbeiss, Phoenix, addressed the August Staff Meeting of St. Joseph's Hospital, Phoenix, on "A Case of Pituitary Tumor." *Dr. John Green,* Phoenix, discussed the presentation.

Dr. John Emmett, Epidemilogist of the U. S. Public Health Service, spoke before the St. Monica's Hospital, August Staff Meeting on the "Epidemiology of Anterior Poliomyelitis."

Dr. DeWitt W. Englund, Phoenix, discussed "What Is Rheumatism" at the meeting.

Dr. Paul Case, Phoenix, announced to the Maricopa County Medical Society at its first fall meeting October 2nd at Good Samaritan Hospital, that the Kiwanis was sponsoring a "Kiwanis Foundation Clinic for Handicapped Children." This foundation is to provide free medical care for handicapped children not covered by other agencies such as the Arizona Society for Crippled Children, The Polio Foundation, and the Welfare Board. Applications for treatment under this Foundation are to be directed to *Mr. Herb Askins,* Phoenix. Board members include: *Drs. Geo. A. Williamson, Geo. S. Enfield,* and *Mr. J. H. Laney,* all of Phoenix.

A Clinical Pathological Case of Acute Nephritis in a twenty-one year old girl was discussed by *Drs. R. Hussong, F. W. Holmes,* and *O. O. Williams,* Phoenix, at the September Staff Meeting at St. Joseph's Hospital, Phoenix.

The Augusta Staff Meeting at Good Samaritan Hospital, Phoenix, heard a report by *Dr. D. Haislip,* of the "ACTH-Cortisone Committee." A case of Lymphatic Leukemia" treated by ACTH with indifferent results was presented by *Dr. T. C. Wilmoth,* Phoenix.

Dr. Harold West, Los Angeles County Hospital, Los Angeles, California, spoke on "Recent Trends in the Management and Care of Poliomyelitis" at the St. Monica's September Staff Meeting, emphasizing the importance of adequate respiratory interchange in the patients and the relation of acidosis to their care, as well as the importance of a high protein intake to the patient.

Dr. Albert Eckstein, Phoenix, discussed "Recent Advances in ACTH and Cortisone Therapy" at the Staff Meeting in September at St. Monica's Hospital; while from the surgical department of the hospital an interesting recovery from measles, complicated by pneumonia and generalized peritonitis from a ruptured acute appendicitis, followed by bilateral subphrenic abscesses was reviewed by *Drs. W. H. Cleveland, Carl Holmes,* and *Douglas D. Gain.*

Dr. John B. McAdams, of St. Paul, Minnesota, has replaced *Dr. R. A. Gutekunst,* as resident physician at the State Tuberculosis Sanitorium in Tempe.

Dr. L. R. Mezera, director of Maternal and Child Health Division of the State Department of Health, calls attention to the marked increase

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in whooping cough throughout Arizona; over 1300 cases has already been reported in Arizona in 1950 as contrasted with 562 cases for all of 1949. Adequate immunization procedures should improve the condition.

Dr. Esther M. Closson, Tucson, has been appointed assistant health officer of Tucson-Pima County Health Unit. She replaced *Dr. Edwin West,* who returned to service in the U. S. Marine Corp.

Dr. James A. Dolce, Phoenix, recently addressed the Maricopa County Medical Society. He stated that he was organizing the City Health Department into four departments:—1) Sanitation. 2) Nursing. 3) Laboratory, and 4) Health Education. The major problem of his health department, he stated, was that of tuberculosis control and case finding. The city council had just authorized expenditure of $10,000 on the 1951 campaign for chest X-ray surveys in this regard, he said. Other problems of prominence to be worked upon vigorously were—fly control and refuse disposal, the problem of our 1600 chicken coops within the city limits, education of restaurant managers and control of food handlers, and finally the starting of free prenatal and well-child clinics under the city health department.

Dr. T. H. Payne, of Detroit, Michigan, spoke to the Maricopa Medical Society meeting October 2nd at the Good Samaritan Hospital on "Newer Uses of Chloromycetin." He told of its efficiency in trachoma, keratitis, gonorrhea, and typhoid. He warned against massive initial dosages which might give anaphylactoids type of shock due to massive death of circulating organisms, particularly in typhoid fever.

Dr. George E. Randall, Phoenix, has been recalled to active duty with the U. S. Army.

The Maricopa County Medical Society National Medical Defense Committee has been organized under the direction of President *Henry Williams,* Phoenix. Its recent report by *Dr. Preston Brown,* Phoenix, outlined its broad objectives, as first procurement of medical officers for the armed forces under the chairmanship of *Dr. Oscar Thoeny,* Phoenix, second, provision for medical care in the event of national or regional disaster under the chairmanship of *Dr. Ben Frissel,* Phoenix; and thirdly, provision of means to reduce hardship of these going into the service under the chairmanship of *Dr. Donald Polson,* Phoenix.

If members or secretaries of medical societies other than Maricopa County would be so kind as to forward information concerning its personnel, of general interest, to the editor of Arizona Medicine, this column in Arizona Medicine could be made of considerably more statewide interest. *Contributions will be welcomed!*

Prior to the death of *Dr. Orville H. Brown,* Phoenix, there was undertaken a collection of facts and statistics with a view to develop and publish the *history of Arizona medicine.* The project has not been completed and Mrs. Orville Brown has expressed the desire that the work be concluded as a historic reference material. All available material is on file at the Central Office of the Arizona Medical Association. The Arizona Medical Association is searching for someone who will volunteer his services to undertake and complete this work. Anyone so interested please contact the Arizona Medical Association through its secretary *Dr. Frank J. Milloy,* Phoenix.

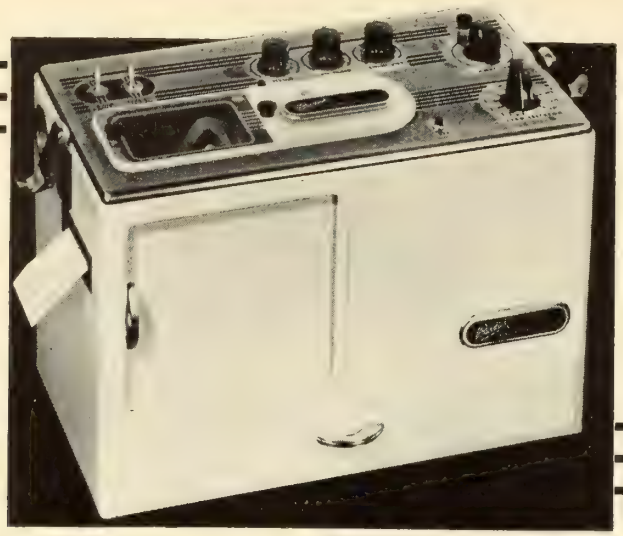
Help! Help! Send information of statewide interest for Personal Notes to the Editor, "Arizona Medicine," Phoenix, Arizona.

Dr. John Kruglick of Phoenix, at the invitation of the Central Arizona Light and Power Company, appeared on its KPHO-Television program September 29, 1950, at 5:30 P.M. His subject was "Preventive Colds—What To Do and What Not To Do." This presentation, entitled "Reddy Kids," is a service program for children sponsored by Calapco and from all reports Dr. Kruglick's presentation was very ably presented and well received.

Members of the Maricopa County Medical Society and its Woman's Auxiliary recently completed a course of Effective Speaking with emphasis on the subject Socialized Medicine and The American Way conducted through facilities offered by the Central Arizona Light and Power Company of Phoenix, Arizona, which was well presented with effective results.

Dr. Marcy L. Sussman delivered the Carpenter Memorial Lecture at the New York Academy of Medicine on October 12. His subject was "Skeletal Changes Associated With Disease of the Blood."

Dr. Blair W. Saylor, Tucson has passed his examinations for the American Board of Otolaryngology which were held in Chicago, October, 1950.



See the A. M. A. Accepted

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PROFESSIONAL BOARD

Organizational meeting of the Professional Board of The Arizona Medical Association, Inc., held in Parlor E of the Pioneer Hotel, Tucson, Arizona, Sunday, September 10, 1950 convened at 11:10 A.M., Dr. Arthur J. Present, Chairman, presiding.

PRESENT: Doctors—Kinkade, J. M., Present, Arthur J., Chairman; Snyder, B. L., Thompson, Hugh C., Van Epps, C. E., Zemsky, Boris.

EXCUSED: Doctors—Born, E. A., Hastings, Robert E., President; Lytton-Smith, James, Milloy, Frank J., Secretary.

GUESTS: Doctors—Polson, Donald A., Ward, James P., Westervelt, Marcus W.

MINUTES

It was regularly moved and unanimously carried that the minutes of the Meeting of the Professional Board held in Phoenix April 16, 1950 be approved as printed and circulated among the Members.

ELECTION OF CHAIRMAN

It was moved by Dr. Snyder, seconded by Dr. Kinkade and unanimously carried that Dr. Arthur J. Present be elected Chairman of the Professional Board for the ensuing fiscal year; and that Dr. Bertram L. Snyder be elected alternate to serve as Chairman in the event Dr. Present is recalled to active military duty.

1950-1951 SEMINAR AND EDUCATIONAL PROGRAM—ATOMIC WARFARE

Dr. Polson advised that at the request of the Arizona Military District in May of this year he attended a six-day Army Graduate Medical School course in Nuclear Energy and its Medical Aspects at Walter Reed Hospital in Washington. Dr. Westervelt in December of last year took a similar course at the request of the National Guard. It was the opinion of Dr. Present that any Seminar program this year should include not only the presentation to the doctors of the state the medical aspects of atomic warfare, but on warfare in general and that the Seminar Committee should consider itself ready to cooperate in any way in the Governor's Civil Defense Board if called upon so to do with the thought that the management and organization of the medical profession should be left to this Committee of the State Association. Dr. Ward indicated that there is a good possibility of experiencing a large number of civilian casualties and a considerable influx of people in this State. This latter possibility may occur well in advance of any actual atomic warfare and it was believed advisable to include in any course of training what individual communities might expect and do in the handling of evacuees be they casualties or otherwise.

Dr. Thompson proposed that Seminars be handled in Maricopa and Pima Counties in conjunction with its respective Medical Society Meetings and that a schedule be arranged to conduct similar courses of instruction throughout the outlying Counties in much the same fashion as post graduate training was conducted during the last fiscal year. The Southern District would include such areas as Globe-Miami, Safford, Bisbee-Douglas and Coolidge-Florence in one circuit, the Northern District Winslow, Flagstaff, Prescott and Kingman and the Yuma area as a separate district.

Reporting on the results of a canvass of the membership in which Seminars were held last season, Dr. Thompson reported that the response was approximately 50-50 as to whether they desire the same type of Seminars previously held which involved three men from outside at considerable expense or whether they wished doctors from the State to conduct the one-day Seminars at a greatly reduced expense. Out of a response of 60, 45 indicated attendance and in answer to the question 47 indicated a desire for similar Seminars with outside physician instructors; approximately 4 did not wish them; and 4 suggested they be not held until 1951. In answer to the question whether such Seminars should be conducted by Arizona physicians 20 voted Yes, 16 No and 15 doubtful, however all were definitely in favor of Seminars.

Following considerable discussion it was concluded that this Board through its Seminar Committee arrange a series of Seminars to be conducted in the Southern and Northern Districts also the Yuma area for the purpose of acquainting the physicians of the State with necessary available information on Medical Defense against Atomic Warfare and measures to be taken in the event of a mass evacuation from California. Such Seminars are to be of one day duration

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with sessions from 2 to 5 P.M. and 8 to 10 P.M. Dr. Polson of Phoenix agreed to conduct the course of instruction in the Northern group including Defense Against Atomic Bombs and the Modern Treatment of Burns and in the Southern District Dr. Westervelt agreed to conduct discussion on Defense Against Atomic Bombs with Dr. Wilkins Manning of Tucson assuming discussion on the Modern Treatment of Burns. Dr. Ward agreed to supply an instructor, possibly Frank Williams, representing the State Department of Health who will discuss Public Health Measures including sanitation, mass evacuation, etc., at each session at no cost to the Association and will similarly supply transportation. The schedule is to be developed at the convenience of both the instructors and members of the profession in the localities to be selected. The State of Arizona will be asked to assume the expense, but it was agreed in the event the State did not the Medical Association will.

It was moved by Dr. Thompson, seconded by Dr. Zemsky and unanimously carried that the Professional Board conduct Seminars throughout the small communities of the State to be given by one of the physicians trained in atomic defense and a surgeon who can discuss burns, treatment and other surgical emergencies, together with a member of the State Department of Health, compensation to be given the two speakers who are practicing physicians at $50 a day and expenses, the Seminars to be held within the next two or three months.

Following completion of the development of the Seminar program it was directed that a suitable letter be forwarded to the Governor of this State requesting financial assistance in the cost of conducting these courses of instruction and that the over all program be given proper publicity.

Discussion also ensued as to what steps should be taken to properly and adequately instruct the lay public as to the aspects of atomic warfare in order that they might be better able to help themselves and understand the problem in such emergency. At the request of the Board, Drs. Polson and Westervelt agreed to develop information for release to the public.

Dr. Thompson further expressed the thought that decision should be made at this time as to whether or not additional Seminars will be given by Medical School teams during the coming year. Two or three months are required to arrange such a program and if determined upon plans should be undertaken now. The Seminars held last year with the State Department of Health participating involved an expenditure of approximately $3,000, the State contributing $1,200 thereof, the attending physicians $600 and the State Medical Association the remaining $1,100. After considerable discussion it was concluded that inasmuch as another Board Meeting will be held in about two months decision could be made at that time. It was suggested that Members of the Board contact Members of their respective local Societies and obtain their views as to the continuance of the Seminar Program. It was the impression of Dr. Thompson that it's an awful lot of money to spend for so relatively a small group of men, Maricopa and Pima Counties being excluded, and yet it is offering post graduate education practically at the doors of the hometown at a very small cost to those in attendance and that it is an excellent thing to do.

SUB-COMMITTEE REPORTS

Venereal Diseases

Dr. Zemsky, Sub-Committee Chairman on Venereal Diseases, reported that the State Department of Health now has an active V.D. Control Officer who has outlined a rather intensive educational program. Commencing the program in October, two weeks each will be devoted to the Phoenix and Tucson areas followed by a schedule of one week each in two other counties. The over all program will consist of radio time, newspaper advertising, talks before civic and lay groups, P.T.A., etc., and effort is being made to run educational shorts in the moving picture theaters. The group would like the activity co-sponsored by the Arizona Medical Association at no cost to the Society. Material will be furnished by the U. S. Public Health Service through the facilities of Columbia University and Hollywood where movie shorts, scripts, etc. have been completed. The public will be encouraged to take seriously the V.D. problem in their community and seek the advice of the physician of their choice or the facilities of the local health officer for examination.

It was regularly moved and unanimously carried that this Association co-sponser as a joint effort the V.D. educational program of the Arizona State Department of Health at no expense to the Association.

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Tuberculosis

Dr. Snyder, Sub-Committee Chairman on Tuberculosis, reported that his Committee had continued work with all the organizations interested in tuberculosis control in the State. One matter of importance is that during the next session of the Legislature effort will be made, following agreement with the Tucson doctors, to develop some plan to add possibly 50 beds as an addition to the Pima County Hospital or some other facility here in Tucson as an adjunct to the facilities in Phoenix. Effort was rather futile during the last session of the Legislature to obtain authority to increase bed capacity at the State Sanitarium in Phoenix. It is believed the Legislature might look with more favor upon the development of additional bed capacity in Tucson to serve the Southern area. While the proposed project will probably be approached through the medium of the Tuberculosis Association, Dr. Snyder expressed the desire to meet with several of the Tucson physicians interested seeking their views and cooperation to this end. It was the concensus of opinion that following a meeting with the local physicians here in Tucson if some agreement could be reached as to the desirability of increasing the bed capacity in this area and such recommendation is submitted to the State Association through the Professional Board its weight might then be employed to support such a program.

Reporting on the results of the Pneumothorax Questionnaire previously circularized, Dr. Snyder advised that one of the biggest problems at the State Sanitarium is that due to surgical facilities the turnover of patients is rather great and they have not been able to keep them as long as they would like to. Many are borderline cases and an attempt has been made through the canvass of the membership to find out, particularly as regards pneumothorax treatments, if the doctors have the equipment and are willing to continue those treatments on discharge of the patients from the sanitarium. If some of these borderline cases could be discharged a little sooner and you can be assured that they will receive adequate care if sent back to some of the more isolated communities, the situation would be improved. Information received through the questionnaire indicates that there are quite a number of physicians that have the equipment and are willing to follow up the cases.

Maternal and Child Health

Dr. Van Epps, Sub-Committee Chairman on Maternal and Child Health, reported that he was anxious to organize his Sub-Committee and expected to make appointments in the near future. The Committee is apprehensive of the infant and maternal death rates in the State of Arizona and effort will be made to develop statistics which are essential in the formulation of an effective program. While the maternal mortality is not great, 27 cases being of record last year, it was suggested that a questionnaire be sent out on every maternal death through this Sub-Committee requesting the physician to report in detail the circumstances surrounding each case. With the interest of the Association behind the inquiry it is felt certain that such maternal mortality may be further reduced.

Dr. Thompson discussed the infant mortality problem in Arizona. He stated that in an effort to get perhaps a little information and knowledge of the situation, the Arizona Pediatrics Society sponsored a group of trips to the Indian Reservations which the State Department of Health paid for and conducted. A report was submitted and as might be expected the situation is so intimately tied up with economics that it is far from being purely medical but still the medical set up they have is perfectly horrible, at least on the Papago Reservation. It is utterly and totally inadequate and I think it might be nice to eventually get not only the Arizona Pediatric Society, whom I hope will go on record as giving definite recommendations, but also the Professional Board and through it the Medical Association, put the bee on the Indian Bureau and the Congress of this State to work on more decent equipment. It was pointed out that the Papago Reservation has an area as large as the State of Connecticut comprising 73 villages with one physician to cover the area and the only hospital at present is at the extreme eastern end of the Reservation, in fact off the main Reservation, and as far as 85 to 100 miles from some of the villages. The only transportation that these people have to get to the villages is provided by the government for the very sick, except they have horses and wagons. Only two field nurses are available to cover this entire huge area and the problem is further complicated by the fact that the field nurses and doctors speed no Papago and a third of the Papagos speak no English. Papago is not a written language so little can be accomplished with visual

aids, at least with written visual aids. An infant mortality rate of between 20 and 25% exists on the Papago Reservation with a life expectancy at birth of only 17 years. It was pointed out that effort is being made by the Indian Service to improve the plight of the Indian and within the year Dr. Lynn J. Lull has been assigned to the area as Medical Consultant. The Council of this Association has referred to the Medical Economics Committee the problem at hand and conferences are now being held through its Chairman, Dr. George G. McKhann, and it is expected a report with recommendations will soon be forthcoming. Lengthly discussion ensued pertaining to the over-all Indian problem and it was concluded that there is hope for further progress and accomplishment in the year ahead.

Crippled Children

Dr. Kinkade, Sub-Committee Chairman on Crippled Children, reported in detail the results of its Conservation of Hearing program, the result of effort of the Easter Seal Crippled Children Society. Six weeks of speech instruction in Flagstaff was provided this summer for the second season supervised by Lydia Newton. Twenty-seven children were in attendance and one of the best lip readers and speech instructors in the country from Milwaukee and another from Chicago participated. The children residing in all parts of the State ranging from preschool age up to 17 and 18 years were selected for the course. The result was gratifying and it is hoped the work may be expanded in the future.

A survey of national scope on polio and tonsillectomy was undertaken and completed with the assistance of Dr. Ward and his staff which sums up one fact that there is no connection between the two. Copies of the report are available to those who may find them of interest.

Dr. Ward inquired as to whether or not it was the wish that his department take over the hard of hearing program. With the passage of the new Social Security law additional federal funds will now be available in the State's Maternal and Child Hygiene program which might make it possible. Dr. Kinkade expressed the belief that this would be a proper thing at least as a beginning which will enable the Crippled Children Society to go on and do something else.

Industrial Hygiene

Dr. Present reported that the Association has been circularized by the Council on Industrial Health of the AMA relative to an interim conference now passed held in Minneapolis on May 10. On this occasion the Director of the Division of Industrial Hygiene of the Minnesota State Health Department announced plans for renewed activity in Industrial Hygiene Consultation Services together with the active promotion of a plan for part time Industrial Nursing Services to be made available to small Industrial units. It was pointed out that the Board has no organization or any set up for a program of Industrial Medicine. It is believed, however, that the industrial situation in Arizona is such that one is not needed at this time. Dr. Ward expressed the view that the industrial problem in the State is more of an engineering one than medical at the present time.

State Department of Health - Maternal and Child Health Director

Communication from Dr. M. L. Mezera was presented and read advising that he is now the full time Maternal and Child Health Director of the Department and that he is now active in this particular field. It was indicated that the recommendation for such appointment originated out of this Board and Dr. Ward stated that this recommendation is one that has been fulfilled.

Standard of Medical Laboratory Services

Communication from Dr. Palmer Dysart was presented in the matter of low standards and lack of control of clinical laboratories throughout the country. Legislation is sought to license laboratory technicians in Arizona. Dr. Ward reported that while most states have some kind of a licensing body regulating the operation of laboratories the problem at hand involves a question of need in this State.

Meeting adjourned at 1 P.M.

FRANK J. MILLOY, M.D.
Secretary.

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REPORT TO THE ARIZONA MEDICAL ASSOCIATION, INC.

MARICOPA COUNTY CHEST X-RAY PROGRAM

Your Executive Secretary, on Tuesday evening, October 10, 1950, in the Little Theatre of West Phoenix High School, attended a meeting called to discuss the possibilities of developing a free mass chest X-ray program to be undertaken in Maricopa County through the cooperation of state, county and municipal authorities and other interested groups, with the cooperation and assistance of the U. S. Public Health Service. In excess of 250 representatives of all groups from every section of the County were in attendance, and displayed an enthusiasm which assured its undertaking, financial as well.

All persons 15 years of age or older residing in Maricopa County will be given the opportunity to obtain, at no cost directly to the individual, a free chest X-ray. These X-rays are expected to reveal approximately 3,400 persons in the County's approximately 325,000 population to have tuberculosis, based on an estimate of the experience of 12 other cities in the United States where a total of over 5,000,000 X-rays have been completed.

Now scheduled to move into the County possibly in early February of next year will be at least 18 U.S.P.H.S. units, with a medical team of from two to seven for each unit.

More than $35,000 of the $40,000 to be contributed by the County, et al., has been assured, to be matched by an expenditure approximating $120,000 by U.S.P.H.S.

Victor Baumann, vice president of the Greater Phoenix Tuberculosis and Health Association, presided. Talks were given by George V. Christie, its President; Dr. D. W. Melick, representing Maricopa County Medical Society; Dr. James P. Ward, Director of the State Department of Public Health; Dr. Paul W. McCracken, Director of the County Health Department; and Dr. James A. Dolce, Director of the City Health Department; Dr. Lloyd K. Swasey, Medical Director of Arizona State Tuberculosis Sanitorium. The X-ray Project Committee of the Greater Phoenix Association includes, besides Baumann as Chairman, Doctors Swasey, Harold Randolph, and Ralph Sprague.

To realize a successful result, the X-ray program must cover at least 90% of the population involved, and there was every evidence that this objective would be achieved, and for the first time the medical and health authorities of Maricopa County will have an accurate check on tuberculosis, which will be a forward step in the fight toward its eventual eradication.

Respectfully submitted,
ROBERT CARPENTER
Executive Secretary

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PRESIDENT'S ANNUAL REPORT
SCHOOL HEALTH COUNCIL

322 South Fifth — Tucson, Arizona

August 1, 1950

The School Health Council for Pima County was organized last August under the direction of Robert D. Morrow, Superintendent of the Tucson City Schools, and sponsored by the P.T.A. to aid in improving the health of indigent school children in this area.

Realizing that such a program could not be entirely successful unless some financial aid was given in those cases where the family or the school could not provide remedial or preventive medical and dental attention for the child, the School Health Council established a Revolving Health Fund with donations received from many local groups interested in child welfare.

In this, the President's Annual Report, grateful acknowledgment of your generous financial support is given, as well as appreciation for the wholehearted cooperation the School Health Council has received from members of the Medical and Dental Societies, Hospitals, and other Social Agencies which have enabled us to arrange in some manner for the care of every child referred to us by the schools.

HOW THE SCHOOLS HELPED

At the outset, members of the Council realized that the all-important nucleus in its health program was the unit in each school comprising the nurse, the principal, the teacher, and the school's P.T.A. health chairman. In most cases, the parents have acted promptly to correct the physical defect through their family doctors. (The Council always follows the directions of the family doctors and dentists. When the family does not have one, it endeavors to have them make a selection.)

REVOLVING HEALTH FUND AIDS

In those cases where investigation showed the family budget could not provide the needed care, and the child not eligible for medication under County Welfare aid, or as a dependent of the state, the case has been referred to the School Health Council coordinator. (This is true in the county as well as the city schools.)

TYPE FAMILIES SELECTED

Under the plan adopted by our Council, a family with one child, earning not more than $100 per month above rent and utilities, is considered eligible for care of its child. An extra $10 income was allowed for each additional child; thus a family of five children with an income of $140 plus rent and utilities is considered eligible if the parent cannot finance care alone, or in part.

Until the School Health Council was organized in Pima County, the health of a large number of school children in these low-income families was neglected year after year. The children lost many days of school. Some were poor students merely because they could not see or hear clearly, or were undernourished. But in the year the Council has functioned, 622 cases have been cleared through the funds made available to us.

VARIETY OF CASES HELPED

Some idea of the type of cases presented by those children is illustrated in the following summary of cases treated.

Heart Clinic	38
Vision	
Refraction	123
Glasses	96
Eye, ear, nose, throat	41
T & A Hearing Loss	23
T & A General Health needs	57
Medical	
T. B.—Lab. X-ray	64
Surgical	
Lab.—X-ray	25
Electroencephalogram	6
Drugs	17
Free Bed (for major surgery)	7
Orthopedic	69
Dental	34
Rejected	22
Total	622

REJECTED CASES TREATED

Twenty-two cases referred to the Council were rejected because the parent's income exceeded our limitations, but in each case the coordinator was able to arrange proper care for the child, usually by asking the doctor to take

the patient at a reduced fee the parent could afford, thus enabling the case to be cleared through the family doctor. The Medical and Dental Societies have been most cooperative in these instances because they know these cases are properly screened and there is a real need.

CIVIC GROUPS SUPPORT

It is a tribute to Tucson's Civic groups that have established the Revolving Health Fund by their contributions that our School Health Council is, as far as we know, the only one in the United States financed entirely by voluntary groups, rather than by state aid.

AGENCIES SUPPORT

Because the coordinator is in touch with all organizations rendering aid, and knows all their rules and regulations and the type of cases they take, there has not been an instance where a child has not been properly cared for. In these cases already established services were used. Our policy has been to use the services available rather than to create other agencies which might prove duplicating agencies. The Easter Seal Society has provided the administrative service by loaning their Secretary, Mr. E. Jay Howenstine, who has served as coordinator.

ANNUAL FINANCIAL REPORT

Receipts

From Parent-Teacher Associations	$ 805.00
Soroptimist Club	200.00
Catalina Jr. Women's Club	620.00
Women's Medical Aux.	250.00
St. Mary's Hosp. Nurses Alumnae	25.00
Kiwanis Club	440.00
Anonymous	15.00
Reimbursements	3.00
	$2,358.00

Disbursements:

Checks 1 to 121 inclusive, totaling	$2,347.09
Balance on hand	$ 10.91

Mrs. William Titsworth, Treas.
August 25, 1950

In computing the total cost of caring for the 622 cases handled during the year, no financial accounting is made of 34 dental cases—courtesy of the Dental Society, 38 Heart Clinic cases—courtesy of Dr. A. J. Present, 7 free hospital beds and service—courtesy St. Mary's Hospital and Tucson Medical Center, and the contributions which private doctors made to the 22 "Rejected" cases. We note the following items which were paid direct by the organizations as listed:

Easter Seal Society	$ 938.00	
Lions Club	600.00	
Hutchison Fund	334.75	
	$1,872.75	$1,872.75
School Health Council		$2,347.09
Total Expended		$4,219.84

B. E. Beck, President

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WOMAN'S AUXILIARY

MEETING OF THE EXECUTIVE BOARD OF THE WOMEN'S AUXILIARY

The executive board of the Woman's Auxiliary to the Arizona Medical Society met September 27th, 1950 at the Old Pueblo Club in Tucson.

Mrs. Herzberg greeted the board members and profusely thanked them for their excellent cooperation and for the enthusiasm displayed in their work. Much had been done throughout the summer to prepare the yearly program, and each committee chairman gave a resume of the work she hoped to accomplish this year.

The Bulletin chairman, Mrs. J. C. Ehrlich, has alerted all county bulletin chairmen to get renewals and new subscriptions, and to actually sell the bulletin this year by calling to the attention of the members the interesting articles contained therein, and that it is the only way to know and understand the functions of National and what Auxiliaries throughout the country are doing. Reading this publication cannot help but make all aware of the value and purpose of Auxiliary.

Mrs. Carlos C. Craig, chairman of the Nurses' Loan Fund Committee, gave an interesting report as to what had been accomplished to date and made suggestions as to the future functioning of this very important committee. As you are aware, two girls are now in training with money received from this fund. Inasmuch as nurses already in training have requested financial aid, it was recommended that this committee be authorized to consider such requests and to give financial assistance provided the girls have the necessary qualifications.

Much time was given to the discussion of programming. Mrs. George Enfield, chairman, stressed the extreme importance of having each county chairman give a short report at every meeting, informing the membership of what is actually being accomplished and what could be accomplished. There is much to be done and programs of interest should be planned around auxiliary activities. She stated further, that programs should be timely, speakers interesting and suggested more audience participation. Above all, Auxiliary programs should be planned to inform doctor's wives how to be good public relations ambassadors to other organizations and in the community at large.

Our publicity chairman, Mrs. Matthew Cohen, stressed the fact that she is dependent upon the cooperation of the State officers and County Publicity chairmen for news items; that when requested, they immediately prepare an article and submit pictures with biographical sketches. *Arizona Medicine* is our medium for publicity and inasmuch as this magazine is sent to every doctor's wife throughout the State and to the Chicago Office of the National Auxiliary, we should extend every effort to see that timely and interesting articles get into the magazine. The deadline for the magazine is the 15th of each month.

Public relations and health activities being so closely related, will work hand-in-hand. The State Society has requested the help of the auxiliaries in furthering its drive for club endorsements against compulsory health insurance. Some 1500 organizations were contacted by the Society and it is now up to the organized auxiliaries and the members-at-large throughout the State to follow through. This is a very important project and means much work, the success depending upon the full cooperation of all. A further project to be investigated is aid to the Visiting Nurses Association by volunteer help. It is hoped that when this project is presented to the auxiliaries, the membership will respond and give time to this worthwhile organization.

Timely legislation will be relayed to the county legislation chairmen by Mrs. Louis Hirsch, State chairman, with a request that sufficient time be allotted at each county meeting to convey such information to the members. This should be a "must" at each county meeting so that doctor's wives are informed and able to disseminate proper information, and to enable them to be enlightened voters.

Mrs. D. L. Secrist, 1st vice-president, hopes to reactivate members, bring in new women and attempt to organize some of the members-at-large.

The board anticipates cooperation of all auxiliary members. Those attending this meeting were:

Mrs. Benjamin Herzberg, President, Phoenix; Mrs. Royal Rudolph, President Elect, Tucson; Mrs. R. Lee Foster, Finance, Phoenix; Mrs. Donald Carlson, Health, Phoenix; Mrs. Hollis Brainard, Today's Health, Tucson; Mrs. Louis Hirsch, Legislation, Tucson; Mrs. Delbert Secrist, Organizations, Tucson; Mrs. J. D. Hamer, Parliamentarian, Phoenix; Mrs. George Enfield, Program, Phoenix; Mrs. L. L. Tuveson, Public Relations, Phoenix; Mrs. Thomas Bate, Revisions, Phoenix; Mrs. Carlos C. Craig, Nurses Loan Fund, Phoenix; Mrs. Brick P. Storts, Treasurer, Tucson; Mrs. Charles Starns, Director, Tucson; Mrs. A. E. Cruthirds, Corresponding Secretary, Phoenix; Mrs. Karl Harris, Maricopa County President, Phoenix; Mrs. Roy Hewitt, Pima County President, Tucson; and Mrs. T. C. Harper, Gila County President, Globe.

Respectfully submitted,

Mrs. Matthew Cohen, Publicity Chairman

MARICOPA COUNTY ACTIVITIES

The annual fall luncheon of the Woman's Auxiliary of the Maricopa County Medical Association was held Tuesday, October 10, at the Arizona Country Club. The meeting honored all new members of the past year.

Mrs. John Findley, hospitality chairman, introduced Mesdames John L. Ford, John F. McKenn, and Robert W. Ripley of Phoenix and Mrs. Fred Ewart of Mesa.

The program for the Southwest Medical Association Convention to be held in Phoenix Thursday and Friday, October 26th and 27th was announced by Mrs. Robert Cummings.

The auxiliary approved the board's recommendation that the auxiliary members contribute one half day per week to the Visiting Nurse Service at the Social Service Center.

Mrs. Karl Harris, new president, presided.

Those so desiring remained to play bridge and canasta after the meeting was adjourned.

Respectfully submitted,

Mrs. John Eisenbeiss, Phoenix, Arizona



Left to Right: Mrs. Charles Van Epps, Phoenix (Serving), Mrs. John L. Ford, Phoenix, Mrs. Robert Ripley, Phoenix, Mrs. John McKenna, Phoenix and Mrs. Fred Ewart, Mesa, Arizona are the new members to the Maricopa County Medical Auxiliary.

PUBLIC RELATIONS

As Public Relations Chairman of the Woman's Auxiliary to the Arizona Medical Association, I have recently written to the various county Chairmen asking their support and cooperation in the state program.

A Meeting was held this summer with the members of the Public Relations committee of the Arizona Medical Association. It was agreed that the way in which the Auxiliary could be of most aid was to follow through with the endorsement program already well started by them. These gentlemen stated that this was the most pressing need at the moment and the State Auxiliary agreed to do its utmost to supplement their program.

The central office has mailed packets to many hundreds of organizations asking them to go on record against Socialized Medicine. These packets included a letter from Dr. Robert Hastings requesting their aid, various literature and a sample resolution to be used or copied if desired.

As these were all mailed out during the summer and many organizations were not functioning, the response has quite naturally been slow. Our job is to follow through by contacting these people, finding out if anything has been done, and if not, urging that it be taken up as soon as possible.

Several methods of approach have been suggested. To some a letter can be sent, to others a personal interview or even a phone call is more effective. Auxiliary members who belong to any of these groups can naturally be of great service.

County chairmen have received (1) a list of names to whom this packet was sent, (2) a sample resolution, Dr. Hastings' letter, and literature contained in the packet, (3) a suggested letter to be used by them in contacting these people, and (4) a list of the organizations who have taken action in favor of the Voluntary Way.

The two main points being stressed are these: First, try to get action taken and second, let the central office know as soon as possible when they do. We feel it is of little value unless we know about it, and get it on file at National Headquarters.

The Public Relations Chairman has no other statewide plan at the moment. It is felt that the local chairmen knew their own problems best. I do wish to stress the fact that whenever the Auxiliary can help shoulder the civic responsibilities in its own community it is of inestimable value.

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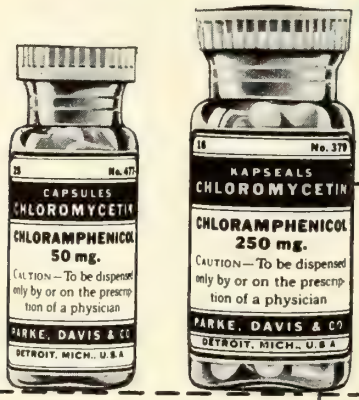
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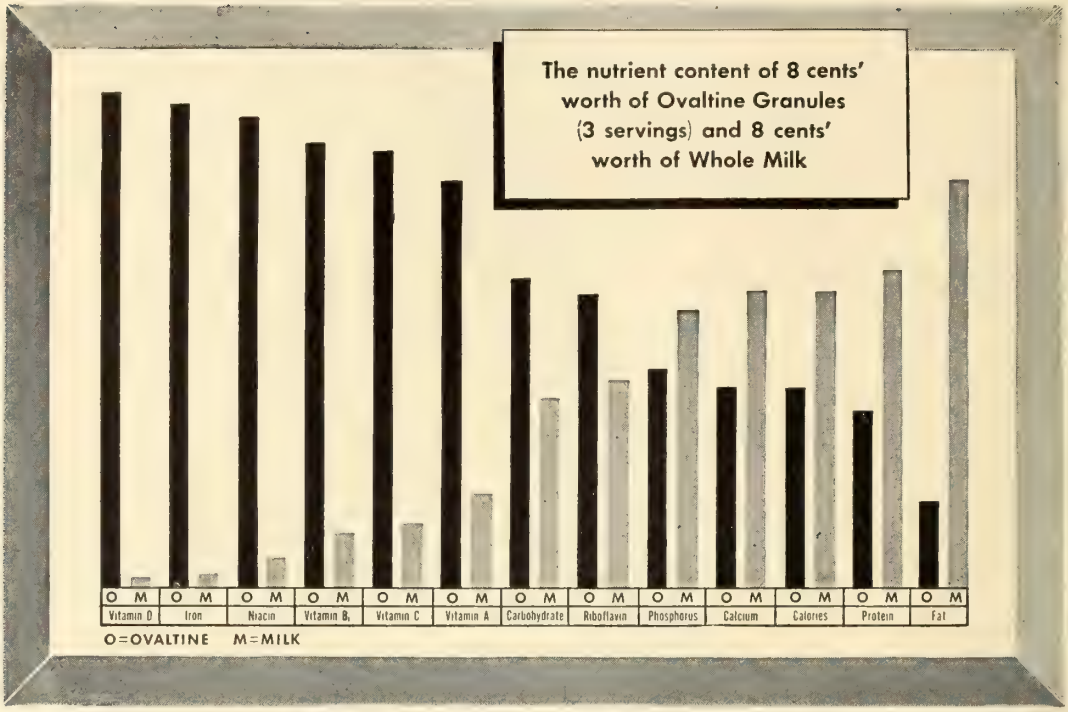
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Hewitt, W. L., and Williams, Jr., B.: New England J. Med. 242:119, 1950.
Recinos, Jr., A.; Ross, S.; Olshaker, B., and Twible, E.: New England J. Med. 241:733, 1949.
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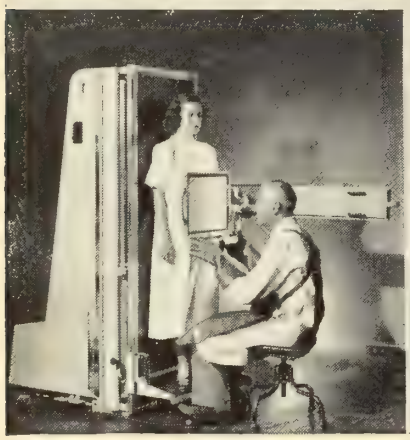
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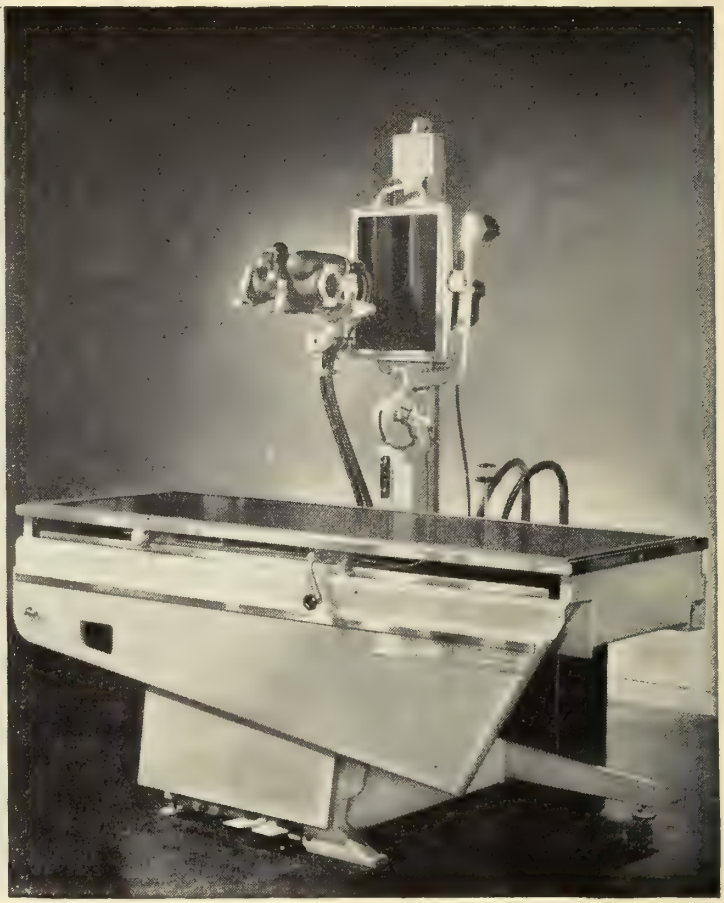
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2. Dodson, A. I.: West Virginia M.J. *45*:1, 1949.
3. Seneca, H.; Henderson, E., and Harvey, M.: J. Urol. *61*:1105, 1949.

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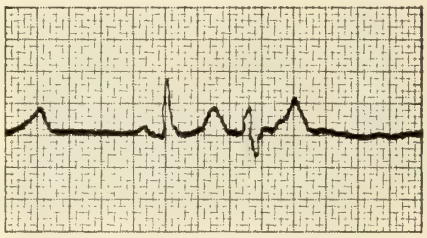
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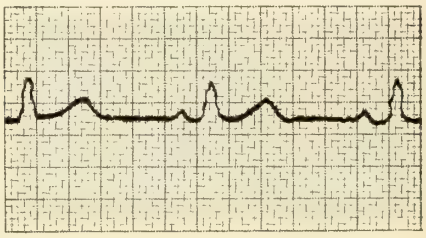
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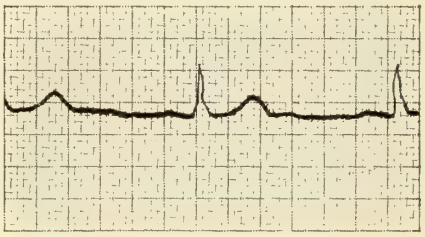
Lead II. Control tracing: normal sinus rhythm, ventricular extrasystole.



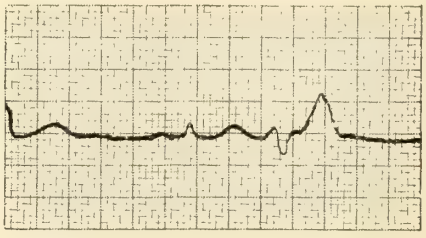
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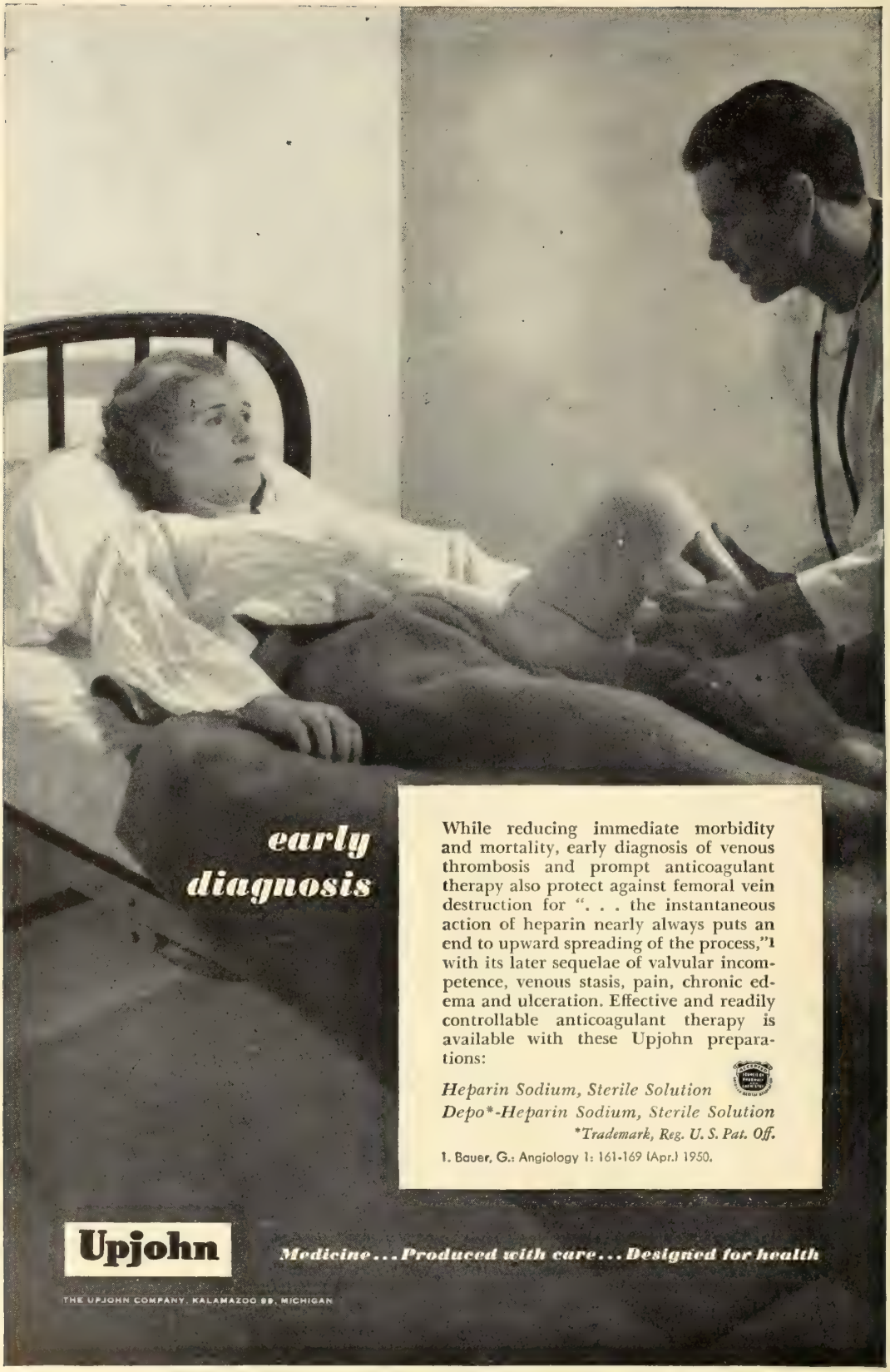
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1. Bauer, G.: Angiology 1: 161-169 (Apr.) 1950.
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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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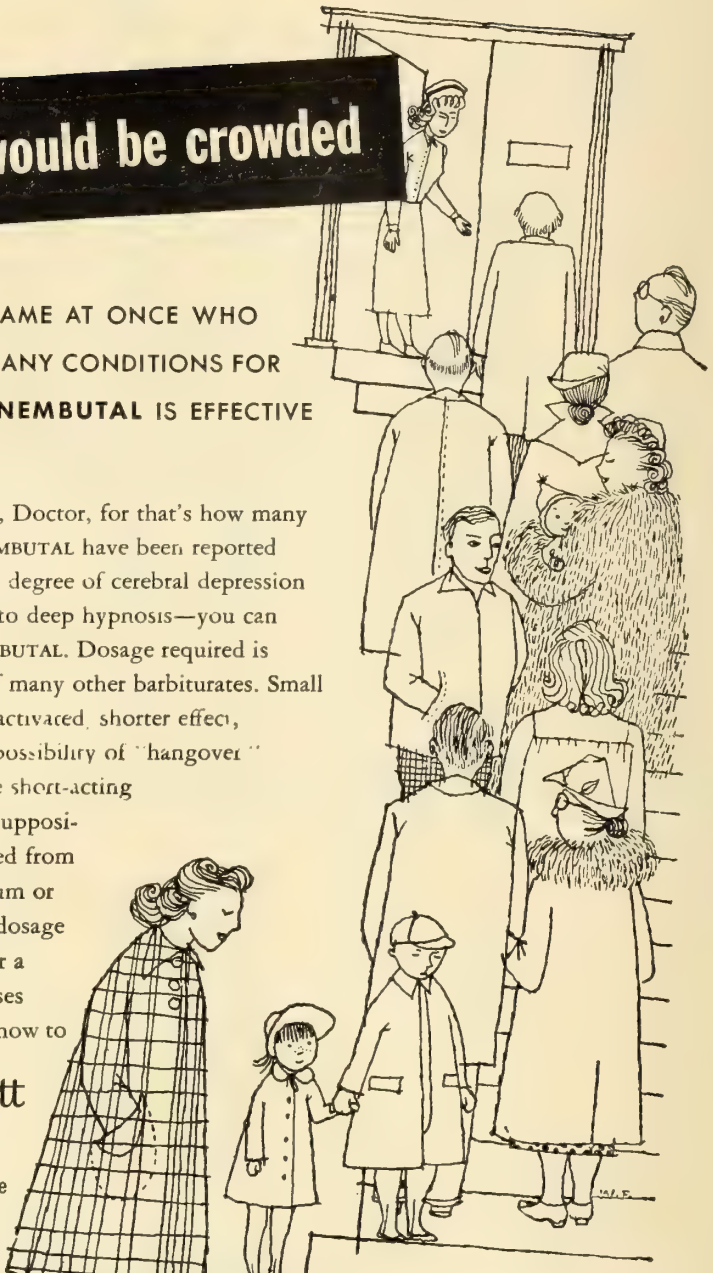
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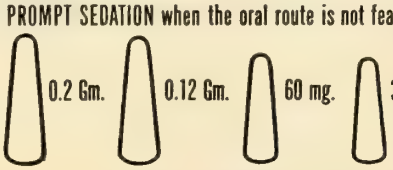
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1 urinary tract infection

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TREATED WITH TERRAMYCIN

M. F., male, age 48

P. H.: Pyelonephritis of 1½ years' duration following ureterocutaneous implants (mixed infection); previous therapy with all available antibiotics and chemotherapeutic agents without response.

Lab. data: Urinary cultures positive for P. vulgaris, E. coli, Staph. albus and enterococci.

Therapy: Terramycin 2 Gm. daily for five days; orally in divided doses q. 6 h.

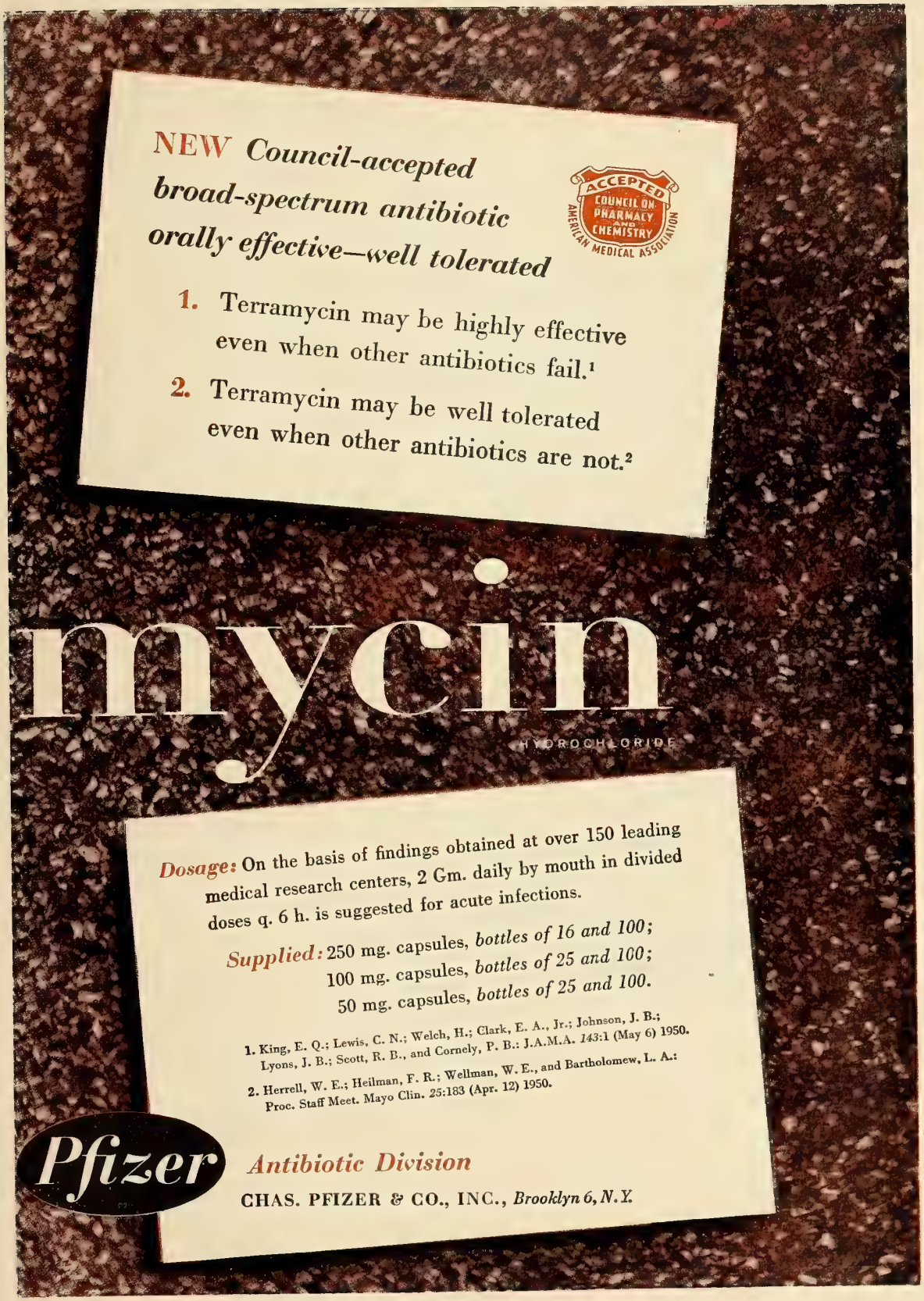
Result: Urine cultures negative except for P. vulgaris by 2nd day of treatment. Response described as "good".

Case report abstracted from: King, E. Q. et al.: J.A.M.A. *143*:1 (May 6) 1950.

Terra

suggested for:

acute pneumococcal infections, including lobar pneumonia, bacteremia; acute streptococcal infections, including erysipelas, septic sore throat, tonsillitis; acute staphylococcal infections; bacillary infections, including anthrax; urinary tract infections due to E. coli, A. aerogenes, Staphylococcus albus or aureus, and other Terramycin-sensitive organisms; acute brucellosis (abortus, melitensis, suis); hemophilus infections; acute gonococcal infections; lymphogranuloma venereum; granuloma inguinale; primary atypical pneumonia; typhus (murine, epidemic, scrub); rickettsialpox.


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50 mg. capsules, bottles of 25 and 100.
1. King, E. Q.; Lewis, C. N.; Welch, H.; Clark, E. A., Jr.; Johnson, J. B.; Lyons, J. B.; Scott, R. B., and Cornely, P. B.: J.A.M.A. 143:1 (May 6) 1950.
2. Herrell, W. E.; Heilman, F. R.; Wellman, W. E., and Bartholomew, L. A.: Proc. Staff Meet. Mayo Clin. 25:183 (Apr. 12) 1950.
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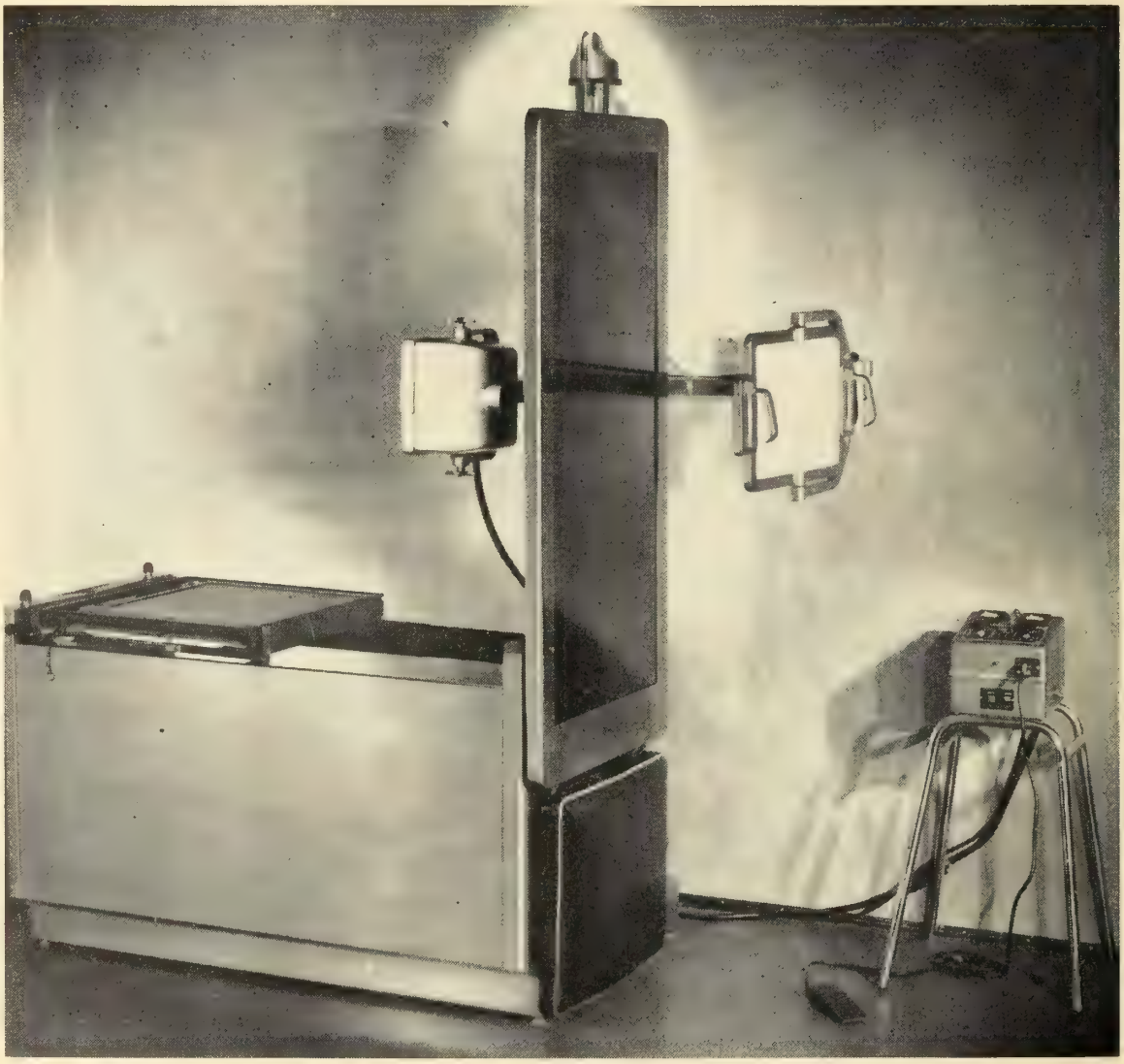
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ARIZONA MEDICINE

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THE ADVANCING CURABILITY POTENTIAL BY SURGERY OF THE CHEST

HOWELL S. RANDOLPH, M.D.
Phoenix, Arizona

Lester Ward writes, "The whole of medicine and surgery is a violent interference with biological competition—Man repudiates nature and applies art. The constant tendency is to render everything more artificial, which means more and more perfect." No field of surgery has seen more rapid progress than has the treatment of chest conditions. It is the family physician who first meets these problems. He is in a position to advise treatment at a time when it is feasible to perform curative surgery in what may otherwise be an incurable condition. A frequent re-evaluation of the possibilities is therefore obligatory. The average length of time between onset of the first symptoms and surgical consultation in cases of carcinoma of the lung is twelve months. This is not altogether due to the slowness of the patient to seek medical advice but frequently because the first phyisican seeing the patient adopts a "wait and see" attitude. All of us have been guilty of this policy in the borderline case where a clear-cut diagnosis may be difficult. The same factor is found in the more chronic lesions and it is good to take stock of the advances that are being made. Prolonged trials of antibiotic therapy must not be permitted to take the place of diagnostic procedures which could yield an earlier diagnosis.

The physician must properly evaluate the general considerations affecting the surgical risk. Where surgery is imperative as in carcinoma, exploration may be done under conditions which would make it inadvisable if the lesion were a small round lung tumor diagnosed as probably benign cyst. Cardiovascular disease frequently will be the primary contraindication for surgery which would be imperative otherwise. Nevertheless, the cardiovascular factors must be evaluated chiefly on the functional capacity of the heart rather than on its anatomical or pathological changes. In the presence of cardiac decompensation with edema, no procedure that would not immediately increase the cardiac output or the ventilatory capacity of the lungs could be considered.

However, many cases of constrictive pericarditis operated upon have some degree of heart failure. Giant cysts of the lung may be removed with the expectation of immediately increasing the ventilatory capacity of the lung. In general, the margin of cardiac reserve should be greater for thoracotomy than for surgery in other parts of the body. This is true partly because of the time consumed by the procedure but chiefly because of the pressure changes on the cardiac chambers involved when open pneumothorax is produced. Blalock[1] found in animals that the cardiac output was increased during general surgical procedure 76%. Others have shown that the cardiac output immediately following surgery, while the patient is still asleep, is greatly reduced and does not return to normal for several days. Snyder[2] measured this and reported an average of minus 41%. Following thoractomy this may be more pronounced.

Most important in determining the cardiac reserve in the surgical patient is his exercise tolerance. What are the activities which he can carry on without great dyspnea or fatigue? A rapid heart is frequently a sign of poor cardiac output and lowered cardiac reserve. If the contemplated procedure will reduce the pulmonary ventilation, greater cardiac reserve is necessary.

*Read before the Regional Meeting of the Am. Col. Phys. Oct. 22, 1949.

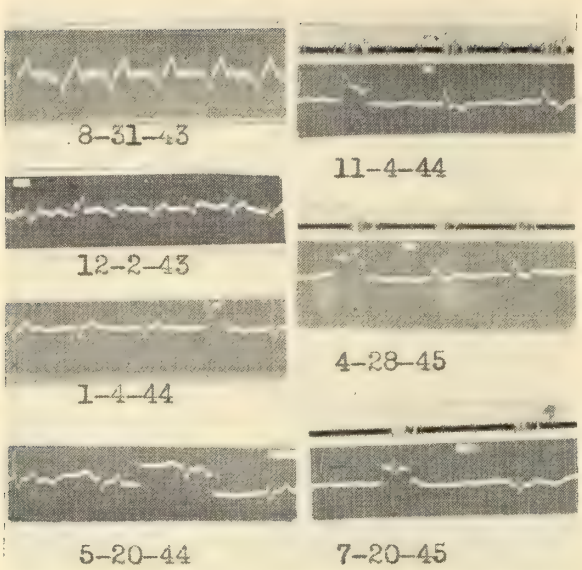


Fig. 1. N. K. Lead 1 of serial tracings from 1943 to 7-20-45. The gradual development of Stokes-Adams syndrome with complete disassociation of the auricular (104) and ventricular (22) contractions. Sound tracings demonstrate prolonged systolic murmur. Three-stage thorocoplasty successfully carried out in 1948.

The following case (Fig. I) is illustrative of the fact that serious degrees of myocardial damage may not preclude surgical approach to the chest problem.

Case N. K. This patient was in a Sanatorium for the treatment of tuberculosis from December, 1936 to September, 1938. Pneumoperitoneum was administered and he was considered to have made excellent progress. He was discharged as apparently arrested. He was followed in Phoenix from 1938 to 1943, during which time the pneumoperitoneum was discontinued, his sputum was negative but the X-rays of the left apex showed a moth-eaten appearance with report of possible outline of small cavities. He had no sputum most of the time, however, and he felt well and continued to work.

The first available electrocardiograph tracing was made on August 31, 1943, when the patient was 40 years of age. (Figure I). At this time we show a bundle branch block with a propagation time of 0.12 and an a.v. block with a conduction time of .22. The second tracing shows a slowing of the heart beat with a rate of 54 and 2 *to 1* heart block. In August 1944 the ventricular rate is 40 and a complete block persists. The loud systolic murmur is well demonstrated on this sound tracing. In November 1944 the heart block was changed to a ventricular rate of 27 and an auricular rate of 90. In April 1945 we see an increase in the width of the QRS now measuring .16. In July of 1945 the ventricular rate was 22 against an auricular rate of 100. The patient continued working and remained fairly comfortable, using large doses of ephedrine when the ventricular rate fell below 30. In 1948 a large cavity was noted at the left apex and a 6-rib three stage thoracoplasty was performed by Dr. Melick under general anesthesia without complication. The case is included in this report because of the unusual nature of the cardiac pathology and the demonstration of the evolution of complete heart block.

Insofar as the thoracotomy may be elective, we hesitate to perform major surgery in the presence of psychopathic tendencies. The development of psychic reactions may interfere seriously with carrying out follow-up procedures such as bronchoscopy or empyema drainage.

In open thoracotomy it is essential that the chest wall heal firmly if complete re-expansion of a lung is to be obtained and if prevention of intrathoracic infection is to be accomplished. Nutritional factors are particularly important and must be reckoned in the surgical risk in any individual case. For example, out of 14 patients subjected to pleural decortication, one had late breaking down of the chest wall incision, defeating the objective of the procedure. There was a dehiscence of the chest wound occurring twenty days after surgery attributed to poor nutrition. Another had a similar complication, with partial failure for the same cause.

The chronological age of the patient is less often a factor in deciding whether malignancy should be attacked than the physiological age, and should be estimated by careful physical examination. The chronological plus the physiological age determines also the degree or extent of the resection. The oldest patient in series was a 74 year old man who had a lobectomy for carcinoma. There were no complications and an apparently good result was obtained. He is now months post-operative. Pneumonectomy when feasible offers a better chance of cure of carcinoma. Lobectomy was elected in this patient because of his age and the presence of considerable emphysema.

We must attempt to diagnose carcinoma of the lung earlier. Routine fluoroscopy on annual health examinations and survey X-rays will help. Hospital patients should have chest X-rays on admission. Keener suspicion of early symptoms and greater readiness to explore the chest are the key points. Sputum examination for malig-

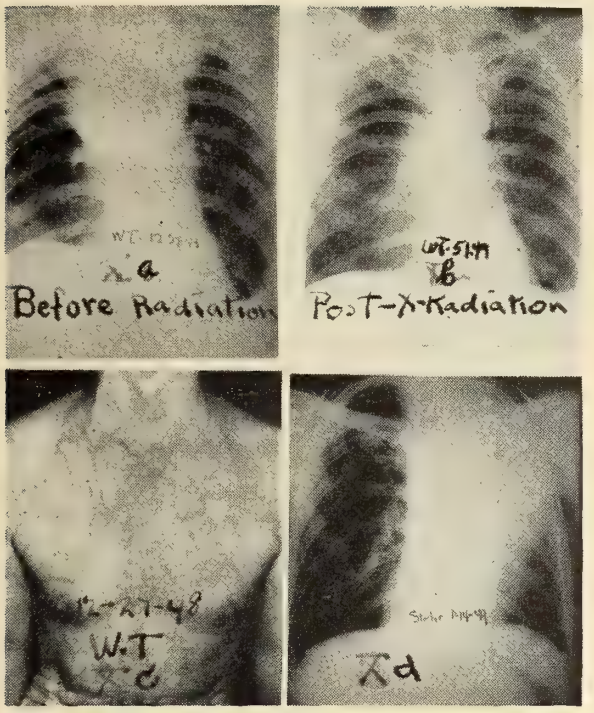


Fig. 2. (a) Extensive carcinoma producing superior venacaval obstruction, (b) after X-radiation obstruction temporarily relieved. (c) Showing collaterial circulation by infra-red photograph. (d) Another case of inoperable carcinoma producing left vocal cord and diaphragm paralysis.

nant cells should be more widely employed. Bronchoscopic removal of bronchial secretions for cytologic studies has increased the diagnostic value of bronchoscopy from 50% to more than 80%. "False positives" occur in occasional cases of squamous metaplasia, so that the exploratory thoracotomy must include frozen section biopsy in any questionable case.

Precluding surgery are the signs of mediastinal involvement such as superior venacaval obstruction as shown in the accompanying roentgenograms and infrared photograph. Note the extreme dilatation of jugular veins and the extensive collateral circulation developed over the thorax. (Fig. 2. a-b-c.) These are usually signs of inoperability.

One cannot judge operability by the apparently confluent solidification of a lobe, which may be due to atelectasis from bronchial obstruction rather than carcinoma extension. Extensive pulmonary atelectases may be the result of a small resectable carcinoma. Fluid in the pleural cavity, especially when bloody, usually means incurable metastases. However, an exploratory should be done if tumor cells cannot be found in the fluid.

Most round tumors of the chest should be removed on suspicion, unless there are physical contraindications. Even the neurofibroma is potentially malignant. Kent et al[3] reported 41% malignant, some with metastases. Dermoids undergo malignant change in a small number of cases. Cysts may be silent for years, then become infected or grow and cause pressure symptoms.

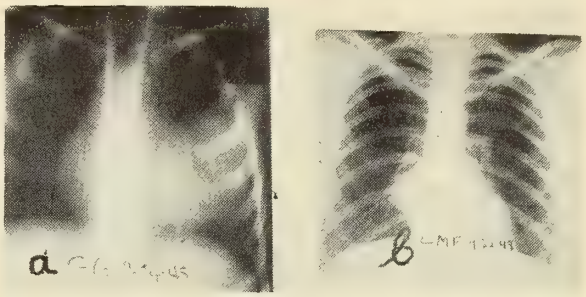


Fig. 3. (a) Planigraph showing cyst in mid lung field on left in an 8 year old girl. (b) 32 year old female with a cyst in lower right pericardial location.

(Fig. 3) G. G. was a little girl of 8 years, whose pathology was found on routine X-ray survey. Upon exploration the cyst was found to occupy most of the left upper lobe, requiring lobectomy. L. M. F. (Figure 3-B) was a 33 year old woman with only a chronic cough. The lesion was discovered on routine examination and found on removal to be an endothelial lined pulmonary cyst.

Mild bronchiectasis, even well localized, may be tolerated rather than resected in patients past middle age. Individual ligation technique brings cure or much relief to many patients who would have been rejected as hopeless a short time ago. Parts of all five lobes may now be resected. Removal of five or six of the 9 segments on one side may leave most of the functioning part of that lung intact.

Figure 4 illustrates the condition for which the procedure is used. This patient had been rejected for resection in the past because of very extensive disease.

Case II R.M., female, aged 32 had been working as a clerk at the airport. Her pulse rate was 76, blood pressure 120/80, heart sounds were normal and breath holding time was 35 seconds. This indicated good vital capacity considering the extensive saccular bronchiectasis. The operation is technically possible because the blood supply to the lower four segments and the bronchi below the opening of the dorsal segment bronchus of the lower lobe is anatomically a separate unit. The resection proceeded in a retrograde manner without undue blood loss, contamination or air leak. The dorsal lobule of the lower lobe which was not resected was twice the

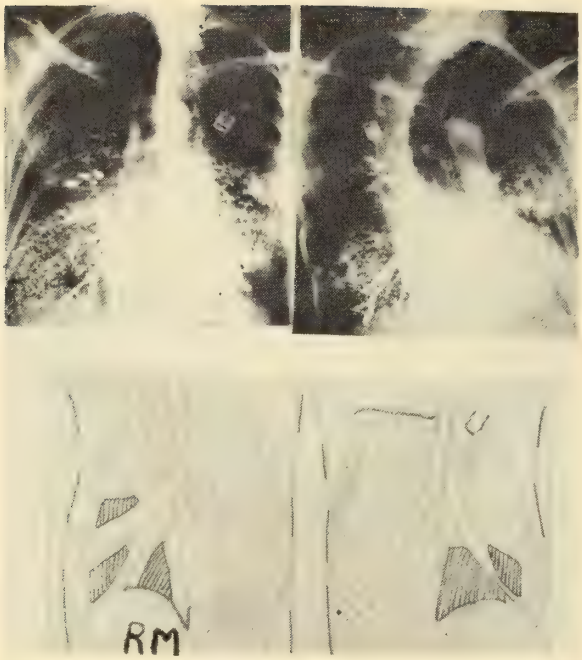


Fig. 4. Extensive bronchiectasis involving segments of all five lobes. Diagram shows segments affected. Segmental resection of left side resulted in marked improvement with no reduction in vital capacity.

volume of all the four diseased lower lobe segments together. Little functioning lung tissue was found supplied by these four segmental bronchi, but the dorsal lobule appeared enlarged. The removal of the lower branches and the small lateral lingular branch of the upper lobe in the same manner seemed to reduce the functioning volume of the left lung very little. The bronchi were kept clear following surgery by bronchoscopy and aspirations. The patient's temperature was never above 99.2°. She returned to her regular work five weeks after surgery, much improved. The amount of sputum is greatly reduced, and the breath holding time three months following operation was 36 seconds.

Chronic lung abscess is now treated by pulmonary resection when it has failed to respond to the presently known antimicrobial agents. Many cases which have come to resection following drainage operations have responded to resection satisfactorily. Even though well localized and in a location that is easily accessible to open drainage, the treatment of choice may be resection. The putrid abscess, the granuloma of coccidioidomycosis when serious symptoms are present, and the tuberculoma, if large and of relatively recent origin, may all be subject to resection. Pulmonary actinomycosis[4] and histoplasmosis[5] may now be added to the list when the lesions are sufficiently localized.

A 50 year old male in good general condition was found on exploration for possible carcinoma to have a granulomatous lesion consolidating the left upper lobe. At operation the frozen section was diagnosed an inflammatory condition and a lobectomy was done. The sections revealed actinomycosis. 20,000,000 units of penicillin in 6 weeks followed, and the patient has remained well seven months. In view of the solid total involvement of the lobe it is doubtful whether medical treatment alone would have been effective.

In 1947 a pneumonectomy was performed on a patient in whom a diagnosis of possible carcinoma had been made. Grossly the upper lobe and part of the middle and lower lobes were indurated, and it was felt that a palliative resection was indicated. On microscopic study this proved to be an actinomycosis infection. Complete thoracoplasty and a plastic operation on the bronchus has not entirely closed the broncho-cutaneous fistula, and the patient's condition at this time is poor although there is no apparent involvement of the remaining lung.

Antibiotic therapy in pulmonary actinomycosis infections is encouraging, but resections of accessible foci is still considered essential. At the present time it seems feasible to remove localized large pulmonary foci when the age and general condition of the patient make the operation relatively safe. Pencillin in massive doses and blood transfusions have been successful and, combined with resection surgery, offer the best chance of cure of otherwise fatal disease. To remove the major portion of the involved area together with what may be the primary focus, leaves less infection to be taken care of by antimicrobial agents.

SUMMARY

A few pulmonary problems are presented to demonstrate the place of surgical aid in their treatment. Changing approaches to the treatment of pulmonary infections, bronchiectases, and tumors of the lung are discussed.

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PLASTIC REPAIR AND MANAGEMENT OF WOUNDS, BURNS AND ULCERS**

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Hollywood 28, California

Early reparative surgery aids in the prevention of disability and the restoration of function. Supportive measures such as fluids, electrolytes, blood, antibiotics, chemotherapy, proteins, etc., must be instituted where necessary. An evaluation of the defect and a plan for surgery must be patterned. Such a plan must include the primary treatment and dovetail into secondary repair where required. (FIG. 4)

Gentleness with tissue, a respect for circulation, an eye for hemostasis, the hoarding of all attached tissue fragments until they are thoroughly proved to be useless before discarding, and being ever ready and present to duel with any complications as they may arise are prerequisites in plastic surgery.

The individual case presents a specific problem demanding that treatment and procedures be modified to adjust themselves to the requirements. It may be necessary to delay intervention for cosmetic improvement in order to save tissue and at some later date, after the dividends of time have accrued, revisions may be instituted.

WOUNDS

Immediate care: The creation of a clean surgical theatre is important. The adjacent area and the wound should be cleansed and copiously washed with saline. Meticulous surgical asepsis is in order.

Tetanus and gas anti-toxin are given along with specific antibiotics and such supportive treatment as is required.

Suturing should be done without tension on the tissues. Subcutaneous sutures of silk or catgt may be employed to gain approximation. Fine black silk, interrupted, everting sutures or a running subcuticular suture is used in the skin. Care must be taken to avoid large stitches across the skin which will result in cross marks that may necessitate wide removal for secondary revision.

Viable tissue should not be trimmed or heedlessly sacrificed. Secondary repair is always kept in mind and such tags or flaps may be indispensable for an ideal final result.

Bleeding is carefully controlled. A resultant

(A)



(B)

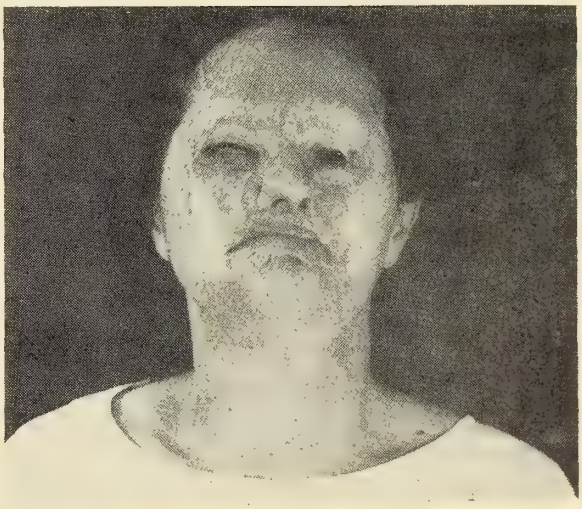


FIGURE IV

Burned face: (A) Deep third degree lye burns of the face and eyes with complete destruction of the tissues. (B) Depicting early skin grafting to cover the denuded areas over the whole face. Further revision has been done and more will be carried out. The eyelids have been reconstructed, mucous membrane grafts to the eyeballs; several "Z" plasty operations.

**Presented at the 79th Annual Meeting of the California Medical Association, April 30-May 3, 1950, San Diego, California.

*From the Division of Plastic and Reconstructive Surgery at the Los Angeles County Harbor General Hospital. (Chief of the Service)

hematoma is an excellent breeding ground for bacteria and may also cause the loss of a partially evulsed flap.

The dressing should be done as carefully as the surgery. Vaseline or parresine gauze is laid over the wound and this overlaid with gauze flats. Where necessary, mechanic's waste is employed over this for pressure. Adhesive tape, elastoplast or stockinette bandage, depending upon the site, is used for immobilization and pressure. If there is a large wound adjacent to a joint, the latter is immobilized in order to restrict movement and relax tension over the wound.

Stitches are removed early in order to avoid suture marks, and adhesive bridges are used over the wound for a period of two to four weeks. The latter aids in preventing spread and also tends to flatten the scar.

Where there is suspicion of keloid formation, early X-ray treatment may be introduced.

Secondary Repair: A large wound with loss of tissue may result in either a contracted or unattractive scar. Revision is employed for both functional and cosmetic improvement.

In removing a scar, the lines of incision are outlined with Gentian Violet 3% U.S.P. Usually this in the form of an ellipse or half moon, and when possible should follow Langer's lines. Such a method usually results in a line that causes less distortion and blends with the skin.

The scalpel is held perpendicular to the skin so that a straight rather than a beveled edge is created. Again, meticulous hemostasis is important. Careful undermining of each side is carried at least twice the width of the resulting defect thus relieving the tension for approximation. The subcutaneous tissue is sutured with fine silk or catgut and the sutures so placed that the skin edges are everted. The skin is united with fine black silk interrupted, everting mattress sutures.

The surgical site is dressed as in the initial repair. Immobilization results in a finer scar.

Loss of Tissue: Wounds may result in loss of tissue causing a large deforming scar or a raw granulating area, requiring coverage both for functional and cosmetic improvement.

When possible local tissue is used for repair. Its close simulation of color and character coupled with the relative ease of reconstruction make it the most feasible. Adjacent relaxing incisions allowing a flap to be shifted onto a defect are often applicable. The resultant defect created in forming the flap may be closed directly or if necessary it can be grafted.

In some cases, contractures may be overcome by a "Z" plasty operation, where the flaps of the "Z" are interchanged thus altering the line of tension.

Should local tissue prove ineffective in the plan, then tissue may be brought from some other part of the body in the form of either free skin or a pedicle flap. Composite grafts taken from the ear are applicable in some cases for transfer onto a defect.

Skin grafts for a defect above the clavicle should be donated from the same locality. The supra-clavicular space, behind the ear, and the upper eyelid are the usual donor sites. This axiom should be followed because skin on the face possesses a peculiar reddish tinge indigenous to the area and when substitution is necessary, it should be simulated.

For other parts of the body, the thigh, back, flanks, chest and abdomen can donate skin. The thinner the skin, the easier the take, but it also contracts more and there is greater opportunity for color change. The thicker the graft, the opposite is usually true. Full thickness grafts are mainly reserved for areas that are closed and clean and are to be substituted for a healed scar.

In some instances a pedicle, including skin and subcutaneous fat may be used. The pedicle may be simple or compound (lined with skin or mucous membrane). It can be transferred to its



FIGURE V

Evulsion of skin and muscles of the left leg: (A) The denuded area was primarily skin grafted. A jump pedicle from the abdomen was carried down to the leg to cover the exposed tibia. Patient is now returned to normal function.

new residence by employing the wrist, hand, etc., as a carrier. (FIG. 5) Primarily, the pedicle is raised (and if necessary outlined and delayed) then attached to the wrist. At a later date, usually about three weeks, the pedicle is severed from its original abode and transferred onto the defect. Again, in approximately three weeks, it is detached from the carrier and completely approximated to the new site. A number of techniques have been introduced to gauge the time necessary between stages (atropine, flourescine, temperature tests, etc.).

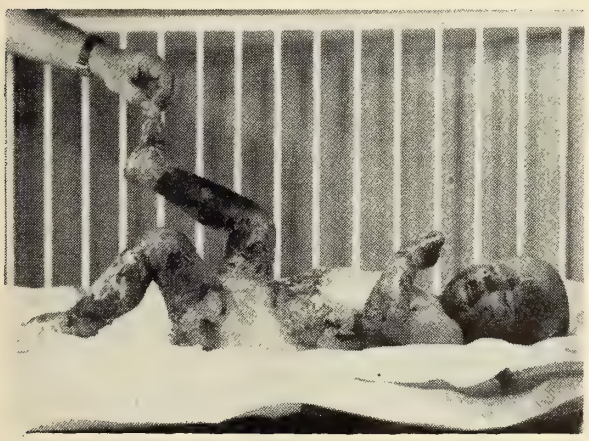
At some later date, the transferred pedicle may be raised separately on each side and thinned so that it more closely resembles the circuitous tissues.

A pedicle may be tubed and then migrated, leaving one end attached at all times. A direct contra-lateral flap can be used, as from the thigh to the opposite heel, the calf to the opposite lower leg, a biceps or abdominal flap to the hand.

Bone from the ilium or tibia, cartilage from the ribs, ears or nose and necrocartilage can be employed for struts or filling material. Again, their choice will depend upon the defect.

Each procedure has a particular use and its choice will be dependent upon the specific problem and the judgment of the surgeon. Exhaustive pre-operative planning cannot be over emphasized.

(A)



(B)

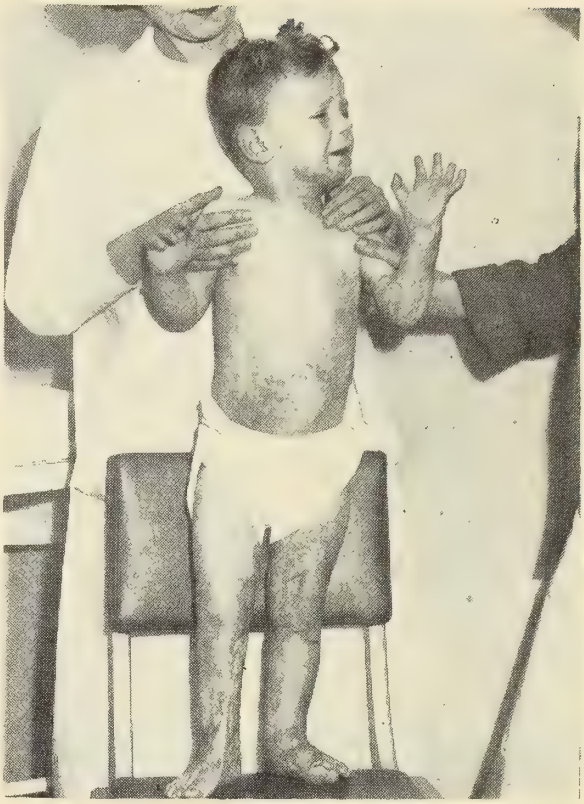


FIGURE VI

Third degree burns of the whole body: (A) Deep burns, with eschar circling both legs, of the abdomen, chest, arms, hands and face. Baby received forty transfusions of whole blood. (B) Split skin grafts taken from all available sites. Some donor areas were used several times after the skin was regenerated. Child is now walking. X-Ray is helpful over the heavy scars. Secondary revision has been done to overcome an ectropion of the mouth. Further revision will be done after time is allowed to do its work.

BURNS

Initially the burned patient must be saved. Shock and infection are attacked. Fluids, gauged by the intake and output; blood, judged by the hemocrit readings are the most important immediate adjuncts. Pressure dressings, all modes of supportive treatment and early skin grafting follow.

First and second degree burns (partial destruction of the skin) usually epithelialize and cover. Third degree burns (total destruction of the skin) though they may cover by scar and contracture, usually require skin grafting. (FIG. 6).

The burned patient is taken directly to the operating room and under complete aseptic technic, the burned sites are cleansed and washed with suds of white soap. A pressure dressing is applied: vaseline gauze, gauze flats, mechanic's waste and stockinette bandage.

At the first re-dressing, four to five days later, the patient is taken to surgery, the dressings are removed, the burned sites thoroughly washed and irrigated with saline. All dead tissue is removed. The burn is evaluated. In some cases, grafting may be done at this time, in others it must be delayed.

When grafting, as much skin as possible is cut from all available donor sites (usually .008-.010 inches thick). The grafts are sutured where required, overlaid with parresine mesh, gauze flats, mechanic's waste and stockinette bandage is used for pressure. Sometimes, especially in children, a light cast is applied over this for immobilization. If the burn appears especially dirty, wet dressings may be used by inserting numerous catheters into the pressure dressing and irrigating through these every two hours around the clock. (FIG. 3).

When the patient is going downhill and does not have sufficient skin of his own to use for grafts, then donors from the immediate family should be used for homogenous grafting. These grafts, though they disappear (unless utilized between identical twins) in three to nine weeks, serve admirably as a skin dressing until the patient is in condition to contribute his own skin.

Usually the patient is grafted in three to four weeks following a severe burn. Baths are most helpful in preparing the granulating wounds for grafting. Good, healthy, clean, firm, red granulation tissue insures the skin take.

(A)



(B)

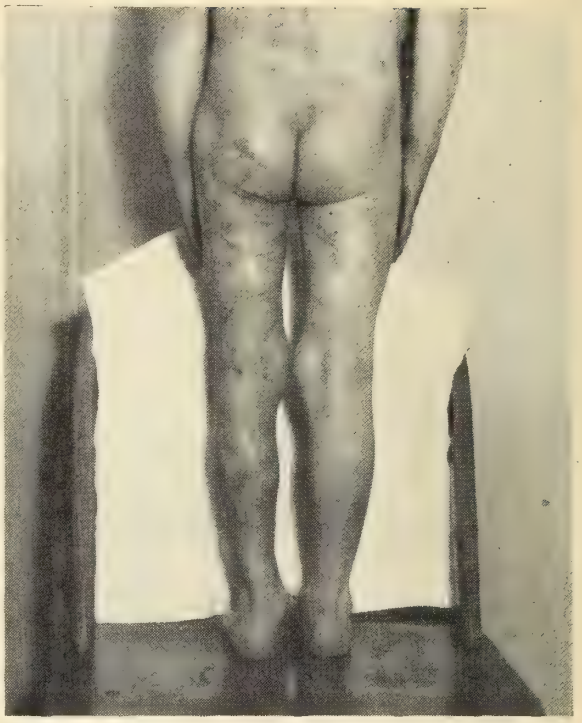


FIGURE III

Circular burn of left leg and part of the right: (A) A third degree burn after first dressing in 5½ year old boy. Sloughing surface debride and allowed to granulate before grafting. All denuded surfaces first covered with homografts from mother because child was toxic and going downhill. Homographs lasted four weeks, patient gained ten pounds and had normal temperature. (B) Split skin grafts from his own back, abdomen, chest and flanks applied, with restoration of function.

Following surgery, the grafts are subsequently dressed on the fifth or sixth day. The sites are cleansed and a moderate pressure dressing is reapplied until the eighth or ninth day. (FIG. 1).

The donor sites are dressed with vaseline gauze, gauze flats and a stockinette bandage. They are usually healed in eight to ten days.

Early movement is most important and this is especially true of the extremities. Physiotherapy is a partner in the early treatment of burns.

Late Treatment: The late treatment of burns, includes all of the procedures mentioned under the section on "WOUNDS." Revision of scars, the "Z" plasty, full and split thickness skin grafts, advancement of tissue from local areas and flaps of all types may be required. Time is the best friend of the burned patient, and its friendship should be allowed to mature before intervening.

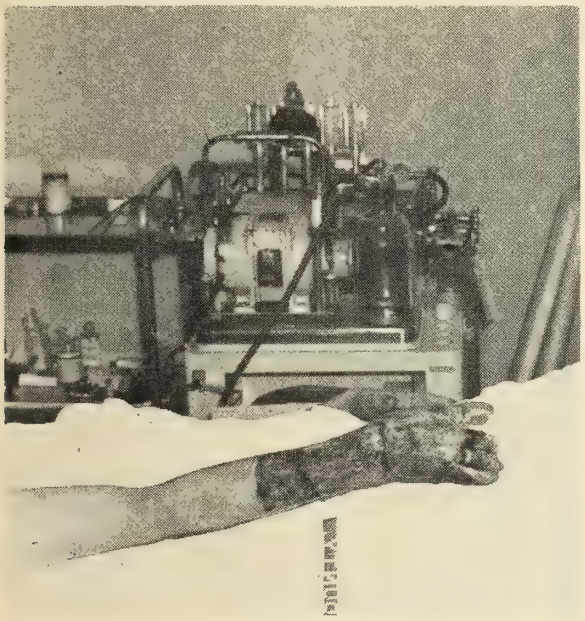
ULCERS

Ulcers may be caused by injury, burns, infection, neurogenic, circulatory disturbances, etc. In strategic areas, healing may result in contracture, ectropion, joint fixation and deformity. The ulcer may remain chronic, causing physical debilitation, discomfort and economic loss. It can assume an acute stage, leading to fluid loss, de-

bilitation and eventual death. Repeated healing and breaking down may occur.

The systemic effects of chronic ulceration aside from debilitation may cause anemia, hypoproteinemia, generalized infection and chronic enervation. The patient's general health must be stabilized with the aid of fluids, proteins, blood, anti-biotics, baths and general supportive treatment. As soon as possible the ulcer should be exchanged for a normal skin covering.

(A)



(B)



FIGURE I

Burned hand: (A) Destruction of the skin and underlying tissues. Tendon sheaths are exposed. The hand has been debride and readied for grafting. (B) Split skin grafts applied over the hand and fingers. Function has been restored. Patient continues in physiotherapy following plastic repair.

Large ulcers that heal by scar contain a covering devoid of normal skin elements and are sensitive to trauma. Repeated ulceration results in a piling up of relatively avascular scar tissue surrounding the wound. Local ointments or medication will not change this picture. The ulcer and all of the surrounding scar up to good healthy skin must be resected and replaced with skin from a healthy donor site. In some ulcers of the lower extremities vein ligation is required in conjunction with reparative surgery.

It may be necessary to bring a pedicle onto the defective area, which can be done at the time while in some cases it can be delayed and substituted for the immediate skin covering.

Regardless of the etiology, if the ulcer be of long standing it should be resected widely and replaced with healthy skin. (FIG. 2).

SUMMARY

When skin has become absent it is important to replace it as soon as possible. Sheets of skin or pedicles can be judiciously employed. Chronic loss of skin results in ulceration which may lead to general debilitation. Surgical principles of wound care, early closure, meticulous suturing, avoidance of wound tension, gentleness with tissue, respect for circulation, careful dressings and general supportive treatment are of prime importance.



FIGURE II

Decubitus Ulcer in a paraplegic: (A) The ulcer and surrounding scar tissue has been resected. The bony prominence removed. An adjacent pedicle flap has been rotated onto the defect and the area closed. Two years have elapsed since the surgery without recurrence.

RENAL HYPERTENSION

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The importance of hypertension as a medical problem exists in over fifteen million people in the United States who show some degree of elevation of blood pressure above the standard normal. Fifteen million people over 25 years of age have hypertension, and about one million over 45 years of age die every year and of this million, 450 thousand, or one out of every two, dies of one or another sequaelae of cardiovascular renal disease. The magnitude of this problem is certainly extensive especially when we consider our lack of thorough understanding of the origin of this disorder and our lack of progress in its treatment. Hypertension is being recognized by the laymen as a killer more malignant than cancer. In such a widely publicized disorder as this, it is natural for the layman to hold certain views concerning it. These have, in a large part, been based upon mortality statistics derived from insurance companies, which tend to over emphasize the high death rate associated with hypertension, and completely ignore those hypertensive individuals who have a favorable outlook for a normal life expectancy with relatively little impairment in health and economic status. It is this latter group with which we are concerned in this presentation.

Medical measures of treatment have proven inadequate and impractical in many cases. A survey of the use of the multitude of drugs in the treatment of hypertension merely serves to re-emphasize the fact that a substance easily administered with a prolonged hypotensive action and without toxic effects is yet to be found. The hope and search for an antipressor substance continues and until such is found, regimens emphasizing drug therapy, rest, and inactivity are substituted but not accepted by all patients.

Now the development of more effective diagnostic, and consequently surgical techniques, has given new hope to those hypertensives falling within the group of patients not benefited by, or dissatisfied with, drug therapy. A number of considerations have stimulated renewed interest in the treatment of essential hypertension by means of surgery. Surgical measures now available for the alleviation of hypertension involve interruptive procedures of the sympathetic nervous system.[23-31] There are instances of extra renal hypertension[19] which demand surgery and these are briefly pheochromocytoma, Cushing's syndrome, coarctation of the aorta, thyrotoxicosis, and arteriovenous fistulae. We are not concerned with these at this time. There is one group of hypertensives which we are particularly interested in evaluating and attempting to relieve by surgical measures. These individual's hypertensive state is on the basis of a unilateral renal disease. This very small group can be benefited by surgical measures in one of every two instances by removal of the diseased kidney.[26] The possibility of the presence of any of these diseases must be thoroughly investigated before removing a kidney of a hypertensive patient even though that individual does show unilateral renal surgical disease.

General Considerations

It has long been known that hypertension is related in some manner to pathological changes in the renal substance. Many investigations have indicated a relationship between renal disease and hypertension. In 1909, Janeway[18] demonstrated a rise in blood pressure was present on ligating the branches of the renal artery of the dog. In 1910, Longcope[18] definitely showed a relationship between chronic pyelonephritis and sustained elevation of blood pressure. In 1930, Goldblatt,[11-12] Page, [6-21-25] and Longcope[18] concluded from experimental work that arterial hypertension was probably the result of an obstruction to the renal circulation, and that secondary hypertension was more often associated with renal disease than with diseases of all other parts of the body combined. Simple experiments performed by Goldblatt[11-12] and his associates have demonstrated this most clearly, and particularly so in demonstrating the impairment of renal circulation by a unilateral lesion. This has been very definitely correlated on a clinical basis.[2-3] Clinical reports have shown that an elevated blood pressure may return to normal, and remain so, for a period following removal

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of a kidney in which there is non-nephritic or so-called "surgical" disease. Page and his collaborators[6-24-25] have shown that a vasopressor substance, which they have called "angiotonin," is liberated in increased amounts in the renal tissues of hypertensive animals. Angiotonin produces an increase in arterial pressure with a resultant decrease of renal blood flow on the basis of arterial vessel wall constriction. The process does not depend solely on renal ischemia, but rather on a change from an alterating blood flow to a continuous blood flow in the kidney producing intrarenal hypotension. There is, therefore, an alteration in renal hemodynamics, an alteration in renal blood flow. Corcoran and Page[6] postulate that reduced renal blood flow promotes excretion, or formation, of a pressor substance, renin, which units with a globulin activator to form "angiotonin." The angiotonin has a specific musculotropic action on smooth muscle of arteries with a resultant increase in tonus. This phenomenon is not found in normal kidney tissue with essential hypertension; and, therefore, normal kidney tissue must deactivate, or destroy, angiotonin, or it must secrete an antipressor substance which does deactivate or destroy it.

It has not been adequately demonstrated that the renin mechanism is responsible for early essential hypertension in man, but it has been shown that renin is demonstrable in the systemic blood of dogs after clamping the renal arteries. However, the clamped vessels in a hypertensive dog, or man, show not renin in the circulatory system; therefore, there must be some other mechanism responsible in chronic hypertensive states.[30]. Another view, by Goldring and Chassis,[13] states that it has been demonstrated in the experimental animal that only partial constriction of renal arteries to both kidneys results in persistent elevation of both systolic and diastolic blood pressures. However, observations of the blood pressure increase as an experimental result of unilateral clamping of the renal artery occurs rarely in their experience. The observations that are available on the effective unilateral renal artery constriction in the dog indicate that increase of the blood pressure is quite uncommon and may only be transient. There are reported instances of persistent elevation but they are only occasional. The infrequent presence of persistent hypertension involving unilateral renal artery constriction in the dog and the rarity of cure in these dogs, following nephrectomy, makes acceptance of unilateral renal constriction as the mechanism necessary in the pathogenesis of even experimental renal hypertension to appear irregular, and certainly offers little or no basis for transferring this mechanism and cure to human essential hypertension

The elevation in blood pressure is the only outward index we have of the complex disorder in human hypertension. The unreliability of the blood pressure with regard to its instability in the hypertensive state must be emphasized. A single reading is worthless because of the multitude of variables present in patient, doctor, and apparatus. A pressogenic agent to the patient may take the form of the physician, himself, his nurse, his office or the preceeding, present, or anticipated events.[30]

The Unilateral Renal Surgical State

It has been shown by numerous investigators that the incidence of hypertension in urologic conditions is no greater than, and is frequently less than, the incidence to be expected by the random sampling of chance as judged by the frequency of the disease in the general population without urologic disease.[1-2-3-30] If unilateral renal disease can initiate hypertension in man, it would be expected that the incidence of hypertension would be greater in patients with unilateral renal disease than in a control group of normal subjects. Available statistical evidence indicates that the incidence of hypertension is similar in both groups.[13] Clinicians have all observed association of various lesions of the urinary tract with an elevated blood pressure such as urinary tract obstruction due to benign prostatic hypertrophy, renal parenchymal disease, polycystic renal disease, periarteritis nodosa, amyloidosis, mercury and heavy metal poisonings, Wilms' tumor, renal hypoplasia, calculus disease of the kidneys, and nephroptosis.

The patient whose primary complaints or symptoms are definitely related to an advanced surgical disease of one kidney, and who has incidental hypertension, the immediate therapeutic problem is simple since nephrectomy would probably be necessary and advisable whether or not hypertension was present.

We are primarily interested in the unilateral urologic conditions that may result in hypertension as found in renal hypoplasia, tumors of the renal pelvis, unilateral calculus disease, nephroptosis, atrophic pyelonephritis, renal tuberculosis,

hydronephrosis, renal injury, aneurysm, solitary cyst encroaching upon the renal pedicle,[16] pyonephrosis, and postembolic infarction of the kidney with atrophy. These are the surgical or non-nephritic lesions which may or may not produce a hypertension.

Fox estimates that 15 per cent of the population of the United States have pyelographic deformities of some type.[30] Several investigators have reported the incidence as high as 27 per cent and as low as 9 per cent.[30] Palmer[30] reports 16 per cent of people have unilateral pyelographic deformities with or without symptoms related to the urinary tract. All patients in his series are normal tensive individuals and do not show even transient elevations in blood pressure. Strangely the patient with bilateral chronic pyelonephritis without hydronephrosis only occasionally develops hypertension. However, there is a definite high incidence of unlateral pyelonephritis with atrophy, with or without hydronephrosis, which does result in hypertension. Ratliff and Conger[26] found 25 per cent of 188 hypertensive patients had pyelographic abnormalities but only 9.4 per cent demonstrated no symptoms of urinary tract disease. Ratliff[26] found 8.9 per cent incidence of urologic disease in 2,055 hypertensive patients, and then less than 5 per cent were candidates for nephrectomy and even fewer than 5 per cent came to operation. In the present series of Ratliff,[26] the greatest incident of favorable results occurred in the cases of adult chronic pyelonephritis, hydronephrosis, and calculus pyonephrosis. In the group of cases of infantile chronic pyelonephritis, the incidence of cure was definitely less than that in the adult type.

Braasch[1-2-3-30] surveyed 4,000 patients with hypertension and found non-nephritic surgical lesions in 2½ per cent. It can be concluded from surveys of the available literature that less than 10 per cent of hypertensives have demonstrable urologic disease.[30]

From such statistics does unilateral renal disease produce hypertension in a sufficient number of patients to warrant a complete urologic investigation? This is a matter of conjecture. In a sifting process the most valuable single procedure is the excretory urogram; therefore, an intravenous urogram should be a routine procedure in the evaluation of each patient with hypertension if the patient (1) gives a history of urinary tract disease sometime during his life, (2) has at one time or another been told that he has had microscopic hematuria or pyuria, (3) the patient is less than 20 years of age and no coarctation of the aorta is demonstrable, and (4) if positive findings on a physical examination are suggestive of renal involvement.[1] Braasch[1-2-3] believes that excretory urography or cystoscopic examination is not indicated unless one of the foregoing conditions is present in the patient with hypertension. If unilateral disease is found on excretory urography, then a more complete urologic investigation with cystoscopy and differential functional studies is mandatory.

The criteria are certainly easy to follow and should result from the initial workup of the hypertensive patient. It is simple enough to take a K.U.B. film of every individual who has hypertension, paying particular attention to each renal outline as to its size, shape and position. A marked difference in the size and shape of the two kidneys should call attention immediately to the possibility of a unilateral renal lesion. Renal shadow suggestive of a small atrophic kidney with a displacement toward the midline should suggest the presence of unilateral renal surgical disease, and a suitable plan of workup should be outlined to make an accurate diagnosis with possibility of surgery in view Braasch[2-3] states that in a routine urographic study of cases with hypertension, evidence of abnormality often is observed such as moderate ptosis, angulation of the ureter, slight pyelectasis or slight abnormality of the outline of the calycine structures from a previous infection, pregnancy or etc. However, he believes that most of these lesions are usually of little or no significance as far as the hypertension is concerned.

The question both patient and doctor would like answered is will a patient with unilateral renal surgical disease, if nephrectomized, (1) obtain a normal blood pressure, (2) an amelioration of symptoms, (3) an arrest in the progress of the disease. In other words, is it worth the time, effort, and cost to investigate all hypertensives when less than 10 per cent have urologic disease which could be the etiologic factor in their hypertension? Schroader and Fish[16] state that an existing hypertension of more than two years is irreversible, and that surgery at this time is of little value except for alleviation of pain and symptoms due to the hypertension The fact that some patients with unilateral lesions have responded to nephrectomy proves that unilateral

renal disease is probably the sole etiologic factor in producing hypertension in certain individuals. True, the percentage of operative cases is small, those operated smaller and those "cured" still smaller. We should strive to discover more and not be discouraged by the few cases that are "cured," but rather be encouraged to go on investigating individuals that have hypertension and particularly those with a unilateral renal disease.

Discovery and treatment of cases before they become irreversible must be the keynote. A definite plan should be outlined to follow such investigation.[27] First and foremost, it must be determined that the patient is not suffering from essential hypertension. The most difficult problem in the case of hypertension, both from point of diagnosis and of prognosis, is to determine if the renal lesion detected could be the etiologic factor, or is merely coincidental. In many instances hypertension has been present for years, and the renal disease seems to be minimal or recently superimposed on an already elevated blood pressure. Secondly, we must realize that there is no reduction in the blood pressure if the involved kidney is completely functionless, and in such a patient, the most that could be hoped for would be relief of symptoms. Third, in all instances the arteral pressure must be persistently elevated and must not show transient elevations and continued large variations on repeated examinations. Finally, hypertension should preferably be less than two years in duration to obtain a good result; however, in long standing cases, surgery may result in symptom arrest and arrest of the progress of the disease. The keystone in the plan is to be absolutely certain that the opposite kidney is perfectly normal, and therefore insuring the presence of adequate renal reserve. It is better if the normal opposite kidney is hypertrophied as demonstrated on roentgenographic examination. It would be ideal if the investigation could include urea clearance, inulin clearance and diodrast clearance as well as the standard functional test determined by phenolsulfonphthalein excretion, the indigo carmine excretion and concentration—dilution test.

It is definitely known that unilateral nephrectomy is of absolutely no value as far as reduction of the blood pressure is concerned in hypertensive patients over 60 years of age, or in any hypertensive who has evidence of chronic azotemia. Usually the younger the patient and the shorter the duration of the elevated blood pressure, the better should be the outcome following nephrectomy.[27] The results of surgery can best be determined after two years of observation after nephrectomy.[1-2-3-28] If the results are constant to this time, then these results will be permanent in about 50 per cent of the patients nephrectomized, and in the remainder of the group, intercurrent causes of hypertension usually will have their onset and lead to an elevation of the blood pressure. In patients who are nephrectomized and whose blood pressure does not decrease to any great degree, but who exhibit relief of symptoms, it must be assumed that there is an elimination of the pressor factor by the removal of the diseased kidney. In a partial decrease of the blood pressure or with a temporary lowering, there is just that much less strain to the cardiovascular system present and this delays to some extent the inevitable breakdown of the heart and vascular tree.

In 1937, Butler[1] reported two successful cases of relief of hypertension in which nephrectomy was performed for atrophic pyelonephritis. Barker[1] reports 61 cases with hypertension, and subsequent nephrectomy, in which no deaths occurred. The blood pressure was checked every two to four weeks for a period of four years. Thirty-two of these patients were seen five years after nephrectomy and there was a good result in 10 in which the blood pressure was 150/100 or less. A fair result occurred in 5 patients in which the blood pressure was slightly greater than 150/100. There was a poor result in 11. Sabin[27] reports that a complete search of the literature reveals 106 cases of unilateral renal surgical disease have been operated, but only 100 of these cases are complete enough to be analyzed. Forty-five of these 100 cases were patients with atrophic pyelonephritis. Smith[30] reports 47 documented cases which resulted in a successful reduction of the blood pressure, 17 of these patients were under 20 years of age and 24 of them were forty or over. Signficant fall in blood pressure of only 47 of the 242 patients in Smith's study is too small a percentage in a disease as variable in its course as hypertensive disease to establish unequivocally the hypothesis of casual relationship between unilateral renal disease and hypertensive disease. Cebert, Reval and Kantor[5] report a series of 20 hypertensive patients in whom nephrectomy was performed for various lesions with a result of 16 of the

patients showing a definite decrease in blood pressure. Those in which the blood pressure decreased only slightly or not at all, the symptoms such as headache, asthenia, and visual disturbances were relieved completely or at least minimized. Goldring states that only 10 per cent of patients nephrectomized are improved whereas Ratliff reports that one-third are improved and an additional 15 per cent are slightly improved.[3,1]. Braasch[2] followed the postoperative course of the blood pressure in 372 cases in which a nephrectomy was performed. All these patients were traced for at least 6 months and the majority of them for a year. Preoperative hypertension had been observed in 198 of these cases, and 174 were normotensive before surgery. Hypertension was permanently relieved by surgical operation for various renal lesions in 65 or approximately one-third of the 198 cases. In 17 cases there was a postoperative drop of blood pressure but the hypertension returned in a short time after the procedure was done. But even a small percentage is well-worth the gain. Braasch[2,3] has estimated that only 1 in every 200 hypertensives has an operative unilateral renal surgical disease which would benefit by the operation. When putting this in terms of over 15 million hypertensives in the United States today, a significant figure of 75 thousand people benefiting from nephrectomy, is certainly something to think about and do something about.

In order to be amenable to a surgical procedure, the renal lesion must be unilateral, but many patients who have a minor degree of unilateral renal disease are definitely not suffering from hypertension on this basis. The surgical or non-nephritic lesions which may cause hypertension in the order of their occurrence are as follows:

1. Chronic and atrophic forms of unilateral pyelonephritis including those developing after previous conservative renal surgery
2. Renal neoplasm
3. Renal lithiasis
4. Hydronephrosis
5. Tuberculosis
6. Solitary cyst of the kidney encroaching on the renal artery

Renal infection may be the etiologic factor in pathologic lesions of the renal parenchyma giving rise to hypertension, but it should be remembered that in most cases of hypertension, there is no clinical evidence of renal infection at the time of examination for the hypertension. The removal of the affected kidney reduces the elevated blood pressure to normal in approximately 60 per cent of cases of atrophic pyelonephritis and approximately 25 per cent in which the infection was secondary to renal stone and/or hydronephrosis.[2,3]

CASE REPORTS

Case No. 1—Mrs. C. R.

A 30 year old white female was seen at the request of an internist in June 1942 for evaluation of hypertension. Intravenous urograms done by the referring physician revealed a ptosis of her right kidney and a congenital abnormality of the left. In 1938, the patient had a toxemia of pregnancy with blood pressure of 190/110 at which time labor was induced and a living baby delivered. For a period of four months after delivery, the patient had intermittent and profuse vaginal hemorrhage for which hysterectomy was indicated and performed in February 1939. Postoperative course was uneventful; however, the patient complained of persistent headache and was seen by the referring internist early in 1942. She was advised to have an operative correction of the right kidney first followed by removal of her left kidney. Patient was admitted to hospital on June 26, 1942. Blood pressure at that time was 180/150. The heart was enlarged slightly to the left and the right kidney was palpable on deep inspiration and freely movable. The remainder of the physical examination was essentially normal. Voided urine at the time of admission showed acid reaction, specific gravity 1.012, 6-8 wbc and 15 rbc per high powered field, and many bacteria and epithelum cells. The NPN was 54 mgs. per cent and the creatinine was 1.3 per cent. A right nephropexy was performed on June 28, 1942. Postoperative course was uneventful. A cystoscopic examination on July 8, 1942 revealed a ptosis of the right kidney, and a differential P.S.P. test with a Garceau catheter inserted in the left ureter in such a fashion as to block it, showed 35 per cent excretion of the dye in 23 minutes from the bladder and only 12 per cent from the left kidney. A left nephrectomy was performed on July 14, 1942. The preoperative blood pressure was 160/110 and at the conclusion of the procedure, it was 140/90. The pulse remained constant throughout the entire procedure. The pathological report was congenital aplasia with

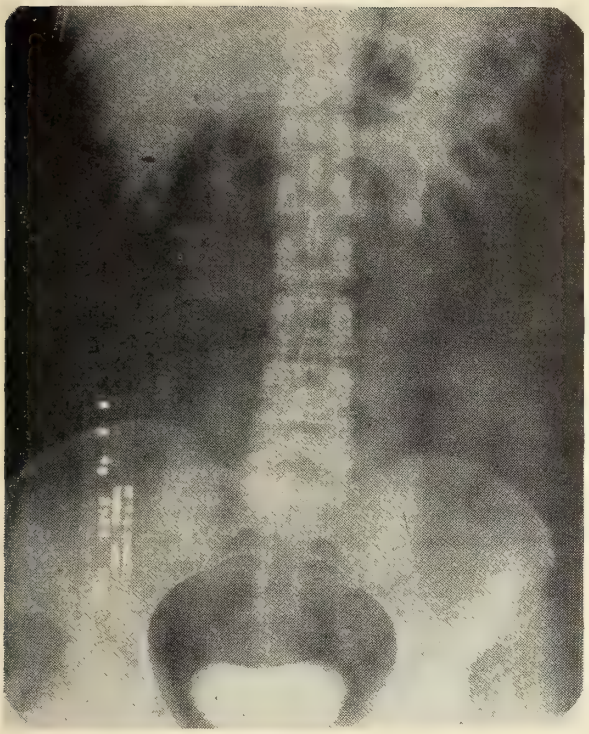


Fig. 1
Case 2. Intravenous urogram (1 hour film) demonstrating normal left kidney and ureter, and only a small area of poorly concentrated contrast media in the right renal region.

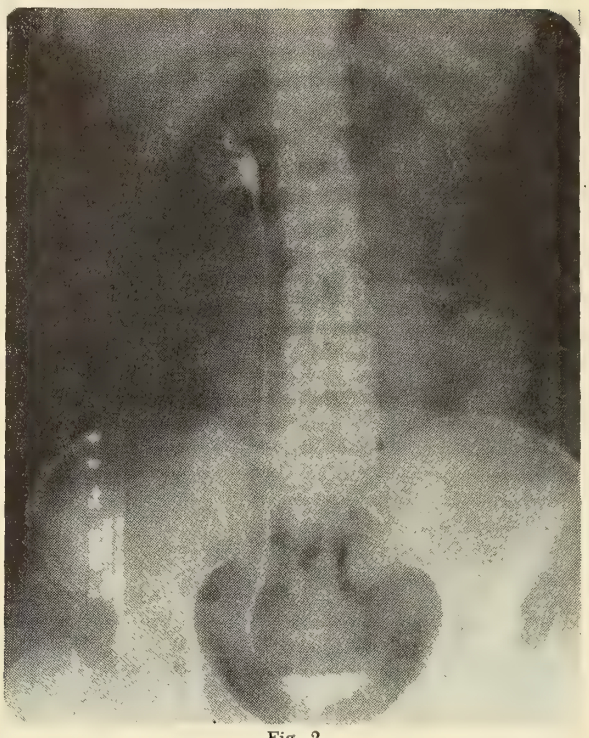


Fig. 2
Case 2. Right retrograde study demonstrating the typical pyelographic configuration of a congenital hypoplastic kidney.

pyelonephritis with marked fibrosis. Postoperative course was complicated by a low grade pneumonitis. Blood pressure on July 17, 1942 was 136/80. Drains were removed from the wounds on the 17th and on the 22nd of July the patient was up and about without complaint and the wound was well healed. Patient was discharged on July 26th, and she was not seen again until May 25, 1944 at which time the blood pressure was 120/80. Patient last visited office on April 20, 1949 at which time blood pressure was normal.

Case No. 2—Mrs. E. S. (FIG. 1 AND 2).

A 51 year old white married female was first seen November 30, 1948 with a complaint of painful urination with moderate frequency. The symptoms began two years prior to examination and the patient had been treated by irrigation and penicillin by the referring physician. Cystoscopic examination at this time revealed multiple polypi and varicosities of the bladder and vesicle outlet. These areas were fulgurated under local anesthesia. Patient returned for recheck cystoscopy in February 1949 at which time her bladder was found to be normal and polypi were present in three areas of the proximal urethra. These areas were fulgurated. Patient mentioned at this time that she had had a history of high blood pressure since age 19 years. Blood pressure on this examination was 180/115. Intravenous urogram was done on June 6, 1949 and also a right retrograde. The films revealed a normally functioning hypertrophic kidney on the left and a small atrophic pyelonephrotic right kidney. Urine culture showed a heavy growth of Aerobacter aerogenes. She was given chloromycetin, 1 gm. daily and returned in five days symptom-free. Her blood pressure was 185/85 at this time. Cystoscopy performed revealed an acute cystitis. A No. 5 catheter was passed to each renal pelves and specimens collected which were negative on all culture media. Poor concentration and quantity of urine was obtained from each side. The patient was seen on several occasions for the next two months and the pelves were lavaged on one occasion and the bladder was irrigated on four occasions. On the 12th of October 1949, she appeared very much improved although the catheter urine showed many bacilli which proved on culture to be bacillus substilis. There was no growth of Aerobacter aerogenes. Patient was admitted to St. Mary's Hospital on October 20, 1949 for a right nephrectomy. Blood pressure was 230/128, pulse 78, respirations 21. Patient was an obese, white, well-developed, well-nourished female in no acute distress. Physical examination revealed a few varicosities of

both legs and was otherwise negative. Catheterized urine specimen on admission was acid, specific gravity 1.011, negative for sugar, trace of albumin, occasional leucocytes, 2 plus amorphous material, and 3 plus epithelial cells. The hemogram was normal. The film of the chest revealed no abnormality. A right nephrectomy was performed on October 21, 1949. The preoperative blood pressure was 220/120 and at the conclusion of the procedure, it was 158/90. Pulse remained stable at 82 throughout the entire procedure. The pathological report was atrophy of the right kidney consistent with the contracted kidney of chronic pyelonephritis. The postoperative course was uneventful and on the 7th postoperative day, the patient's blood pressure was 170/88. She was discharged on October 29, 1949. Six weeks postoperative the blood pressure was 160/90 and on February 7, 1950 it was 160/100. The patient has been doing very well with regard to her urinary tract, and has noted relief of symptoms which were present preoperatively.

Case No. 3—Mrs. G. D.

A 43 year old white female who underwent gynecological surgery on January 4, 1945 at which time the right ureter was inadvertently severed and a vaginal fistula occurred. The right ureter was transplanted into the urinary bladder in April 1945. The patient first began to notice dizziness in December 1945 and was admitted to St. Mary's Hospital on December 12, 1945 for evaluation. Physical examination revealed a palsy of the right 6th cranial nerve. There was tenderness to deep pressure over the right renal area and in the right lower abdominal quadrant. A voided urine on admission revealed a specific gravity of 1.020, negative sugar, 1 plus albumin, 2-4 leucocytes and 8-10 squamous epithelial cells per high powered field. Blood urea nitrogen was 21.4 mgs. per cent, creatinine 1.4 mgs. per cent, and non protein nitrogen 48.0 mgs. per cent. Hemogram was normal and Kahn and Wassermann were negative. Cystoscopy under local anesthesia revealed a normal left ureteral orifice. The right ureteral orifice was visible but scarred and not retracted. Several attempts were made to catherize the right transplant of the orifice without success meeting an obstruction at 2 and ¾ cms. from the bladder. Indigo carmine function was 2 minutes 45 seconds on the left and no dye was seen to appear from the right orifice during the entire examination. P.S.P. concentration on December 15, 1945 was 30 per cent in 18 minutes, 10 per cent in 30 minutes, 10 per cent in 45 minutes, and 5 per cent at 60 minutes; for a total of one hour 65 per cent. E.K.G. showed a fairly normal tracing with a tendency toward low voltage. Blood pressure on December 13, 1945 was 140/95 and on December 16, 1945 was 145/85. The patient was advised to have a right nephrectomy performed. She was seen at the office on April 18, 1946 and had not made up her mind concerning surgery. On August 28, 1946 her blood pressure was 140/100 and on December 4, 1946 it was 155/100. She was admitted to St. Mary's Hospital on April 2, 1947 and on April 3rd, a right nephrectomy was performed. The preoperative blood pressure was 140/95 and remained so throughout the entire procedure. A preoperative intravenous urogram revealed a non-functioning right kidney of approximately normal size and an enlarged normal left kidney. The pathological report was hydronephrosis of the right kidney on the basis of non-calculus obstruction. The postoperative course was uneventful and the patient was discharged April 13, 1947. She vsited the office April 25, 1947 and her blood pressure at that time was 160/100.

Case No. 4—Mrs. W. M. E. (FIG. 3).

A 55 year old female with a history of ten to twelve years of intermittent episodes of bilateral pyelonephritis, with symptoms most marked and most persistent on the right. The referring internist made a diagnosis of contraction of the right kidney with hypertension probably on this basis. In 1942, 6 years prior to our examination, she had received radium therapy for a grade I adenocarcinoma of the body of the uterus. Physical examination at this time revealed a blood pressure of 190/124 and no other abnormalities with the exception of residual fibrosis of the cervix and adnexae on vaginal examination. She was admitted to St. Mary's Hospital on July 19, 1948. Examination of a voided urine at the time of admission revealed acid reaction, specific gravity of 1.012, and no other positive findings. The hemogram was essentially normal. Intravenous urograms showed a slightly enlarged normal left kidney and a smaller than normal poorly functioning right kidney with a slightly dilated pelvis suggestive of pyelonephritis with atrophy. A right nephrectomy was performed on July 20, 1948. The preoperative blood pressure was 170/110 and it remained so throughout the

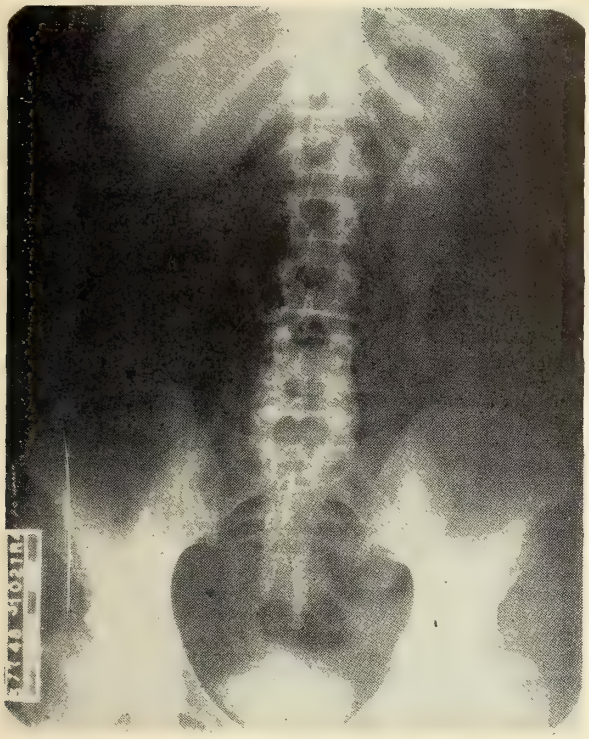


Fig. 3
Case 4. Intravenous urogram (20 minute film) demonstrating a normal left kidney with moderate hyperplasia, and a small poorly functioning pyelonephritic right kidney with hpdronephrosis.

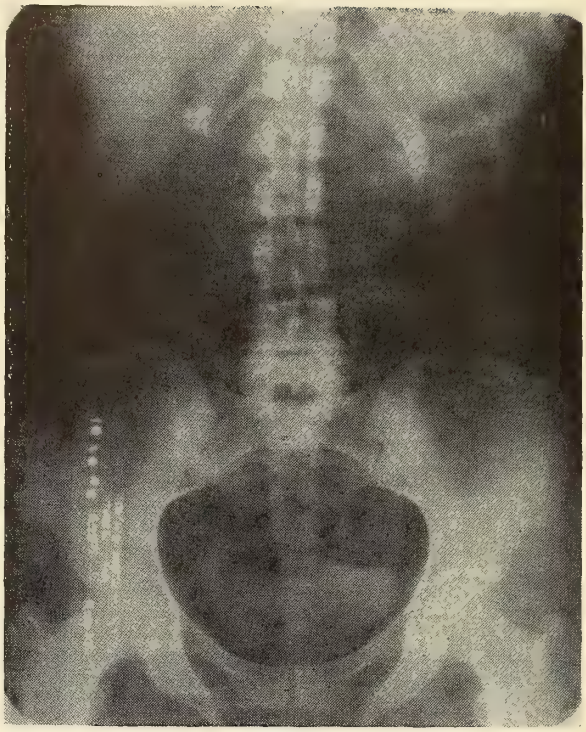


Fig. 4
Case 5. KUB film prior to intravenous urographic series revealing a right solitary renal calculus.

course of the operation with the pulse remaining stable at 80. Postoperative course was complicated by some visical irribility which was relieved with sulfonamide therapy and sedation. Her blood pressure on July 23, 1948 was 180/100, on July 26th 190/110 and on July 27th 175/90. She was discharged from the hospital on July 29, 1948 and was seen in the office on August 17, 1948 with a blood pressure of 170/90. On March 31, 1950, approximately seven months after surgery, her blood pressure was 180/100. There is no significant change in blood pressure from that noted preoperatively, but this patient states that she feels much better than she has during the past fifteen years.

Case No. 5—Mrs. F. K. (FIG. 4, 5, 6).

A 44 year old married white female was first seen on September 28, 1948 with the complaint of burning and frequency of urination. In June 1948 she was told that she had an elevated blood pressure, and that there was some pus in the urine. A catheterized specimen of urine revealed 4 plus pus on microscopic examination and cultured B. coli. She was given a course of sulfathaladine with only minimal benefit. Her blood pressure was 210/130. She was followed for a few weeks while on sulfonamide therapy, and advised to have a cystoscopic examination because of the persistence of pyuria. Intravenous urogram on October 14, 1948 revealed a calculus in the right kidney with poor function of the right kidney and a normal left kidney. She was advised to have a nephrectomy. She was admitted to Tucson Medical Center on December 1, 1948 at which time her blood pressure was 220/180. A catherized urine at the time of admission showed a moderate pyuria. The hemogram was normal. A course of medical measures consisting chiefly of sedatives was instituted in attempt to lower the blood pressure but this was without effect. A right nephrectomy was performed on December 7, 1948. The preoperative blood pressure was 180/120 and at the conclusion of the procedure was 170/100. The pulse remained constant at 80 throughout the entire procedure. Her postoperative course was essentially normal and she was maintained on a salt-free diet and phenobarbital grs. one-quarter 4 times daily for sedation. The pathological report was renal calculus and chronic atrophic pyelonephritis. The day after surgery, her blood pressure was taken several times and ranged from 130/90 to 160/110. On December 11, 1948, her blood pressure was 180/100; on the 12th, 142/93; on the 13th, 166/66; on the 16th, 138/70; on the 18th, 140/98; on the 19th, 130/94; on the 20th, 140/90; on the 21st, 128/88; and on the

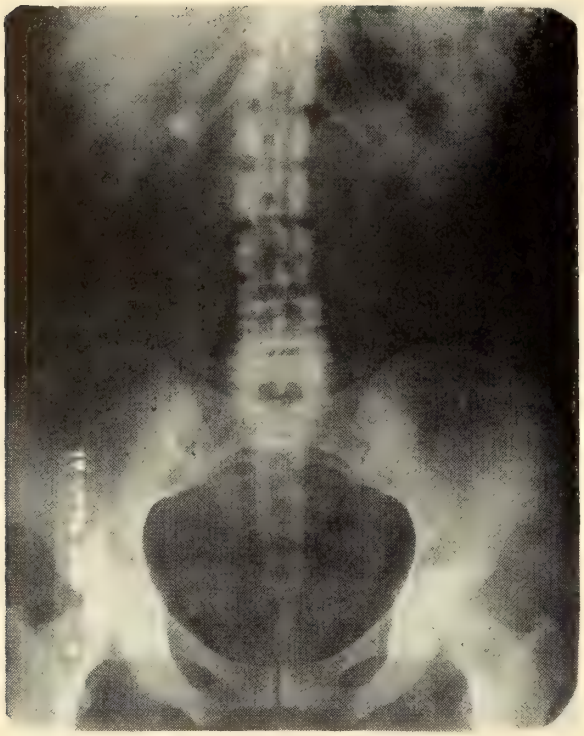
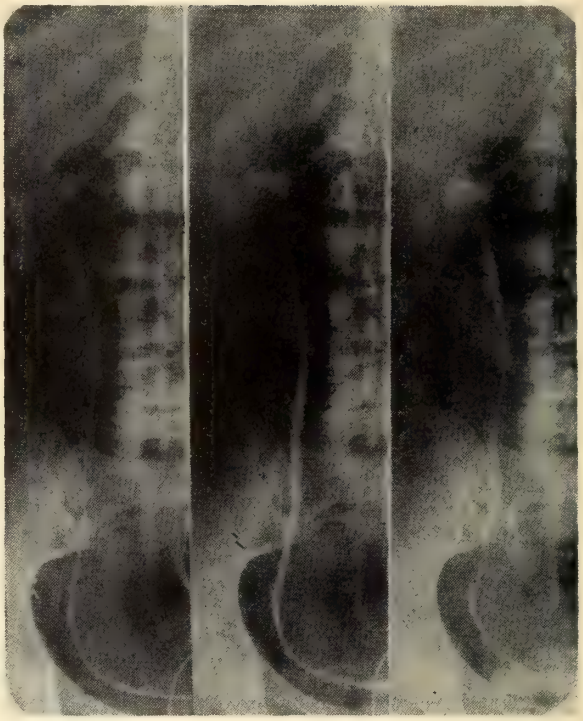


Fig. 5
Case 5. Intravenous urogram (10 minute film) demonstrating a normal left kidney, and no concentration of contrast media by the right kidney. The calculus noted in Fig. 4 is again seen.



a b c

Fig. 6
Case 5. Right retrograde study.
a. Film with No. 5 catheter in place in the right ureter and before injection of contrast media.
b. Film with No. 5 catheter in place and taken following injection of contrast media.
c. Final film after injection of contrast media and after removal of catheter demonstrating the renal calculus and moderate pyelectasis and caliectasis consistent with pyelonephritis and other secondary changes due to the presence of the calculus.

22nd, the day of discharge, it was 118/90. The patient was seen at the office one week after discharge and her pressure was 145/95. She visited the office on February 12, 1949 before returning to her home in the East and her blood pressure was 140/90 at that time.

CONCLUSION

Routine urologic studies in all hypertensive patients regardless of the high over-all cost entailed appears to be a desirable method of evaluation of their disease for a significant number of patients have gross lesions which would not otherwise be discovered and which might be amenable to surgery. Urographic evidence of deformity in the urinary tract does not always signify that the renal lesion is an etiologic factor of hypertension, and many renal deformities observed in a urogram do not have any clinical significance.

The mention of unilateral nephrectomy for hypertension a few years ago usually resulted in enthusiastic discussion with ready acceptance, but it is now approached with a more critical eye and very justly so, for unilateral nephrectomy should be undertaken with caution and only after a complete clinical study. Pessimism with regard to surgical treatment of the diseased unilateral kidney is not fully warranted. When unilateral renal disease is demonstrated by a roentegen examination, it can be treated by nephrectomy with an expectation of improvement or cure of the associated hypertension in about one-third of the cases. While unilateral nephrectomy may occasionally result in probable "cure," the variable and often unpredictable course of the blood pressure level in a disease of such magnitude requires evaluation of this procedure in each specific case to be exact before acceptance. A review of the literature reveals that of those individuals having hypertension, only one-half per cent are candidates for unilateral nephrectomy.

When the patient has decided on operation, he may expect to derive permanent benefit if under 50 years of age and if the hypertensive state is of comparatively recent origin. However, even in carefully selected cases, no definite statement can be made as to the alleviation of the hypertension itself or of the symptom complex. In operated patients, the blood pressure

may remain at a low level for a year or more after operation, and usually remain so after this period of time. One follow-up study of cases in which hypertension was present and in which operation was performed shows that in a third of the total cases, the blood pressure became normal after operation and remained so for a year or more.

In only a few well studied cases should nephrectomy be performed, and then primarily not to lower blood pressure but rather to extirpate the established urologic disease.

SUMMARY

Patients less than fifty years of age who have had an elevated blood pressure and hypertensive symptoms complex for less than two years and who give a history of urologic disease should have an intravenous urogram as part of their hypertension workup.

If a unilateral renal surgical lesion is found after ruling out all other causes of hypertension, this lesion should be thoroughly investigated with surgery in view for relief of the hypertensive state. However, surgery should be recommended only if the contralateral kidney is normal in all respects.

Unilateral renal surgical disease is present as an etiologic factor in three of every six hundred hypertensive patients, and one of these three may receive lasting benefit by relief of their hypertension by nephrectomy.

Chronic atrophic pyelonephritis as a source of hypertension is the most common lesion in the group of unilateral surgical, or non-nephritic lesions.

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DIARRHEAL DISEASE ON AN INDIAN RESERVATION

Report of 221 Cases, Emphasizing Etiology and Epidemiology

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The problem of the causation of diarrheal disease is almost always complex. When it becomes involved in tribal customs, primitive sanitary facilities, and acceptance of diarrhea as an inescapable component of everyday life, then the problem may well be insoluble. This paper will deal with the etiology of diarrheal disease in the Indians residing in the Gila River, Pima-Maricopa Indian Community, in Arizona.

The prevailing belief has been that all diarrheas common to these Indians are caused by (1) improper diet, or (2) functional digestive disorders, or that they are (3) secondary to some parenteral infection. However, clinical observations indicate that these views are, in most instances, fallacious, and each will be discussed presently. The section on Results will consider the etiology of these disorders, and the Discussion the epidemiology.

Material and Methods

Beginning in May 1949, the Reservation, comprising 7500 Indians, had a heavy outbreak of diarrheal disease. A series of cases were studied to determine the underlying causes. The total number (to the end of the first week of August 1949) was 221 patients—either hospitalized or treated as out-patients. (An unknown number were untreated, due largely to a lack of personnel.)

At the beginning of the survey, standing orders were issued which required a specimen to be taken of each abnormal stool passed by these patients at the hospital, no matter what the primary diagnosis was on admission. These stool specimens were then sent to the Arizona State Health Department Laboratory in Phoenix, Arizona for bacterial cultures.

Results

Within a short period it became clear that the clinical impressions had been correct. The results of the stool cultures (Table 1) indicated the faultiness of two of the previously mentioned opinions concerning etiology: these diseases were neither "dietary problems" nor "functional disturbances." They were enteric infections.

It is to be noted that of the total of 221 patients with diarrheas it was possible to isolate, on culture, a dysentery-causing organism in 134 cases (60 per cent). It was felt that there would have been a much larger number of positive stools if difficulties could have been overcome such as the lack of patient cooperation, language difficulties and out-patient treatment. In addition, many specimens were lost or broken in transit, some were "missed," destroyed or broken, either in the hospital or in the laboratory, and the time interval between taking the specimens and culturing them often was as much as 72 hours. Even under such circumstances, however, the percentage is noteworthy, and the large number of stools positive on culture for the Paracolon organism (an intermediate organism between *Escherichia coli* and *Aerobacter aerogenes*) should demonstrate that this organism is an enteric pathogen, not only for infants and small children, but for all ages.

Concerning the third of the previously-mentioned opinions, that a large number of diarrheas are associated with or are secondary to parenteral infection, Table 2 gives our results. Of 221 cases of diarrhea, 54 (25 per cent) were either associated with, or were secondary to, parenteral disease. In 16 (30 per cent) of these 54 cases, it was possible to isolate, on culture, a dysentery-causing organism. Our experience seems to confirm the belief that in the majority of cases the diarrhea is primary and is a bacillary dysentery. If cultures of all abnormal stools are taken, the tenacity of the physician, basing his search upon the clinical evidence furnished by the patient, will usually be rewarded by the isolation and demonstration of a causal organism.

Mortality rate. In this series of 221 unselected cases, there were only two deaths. The first occurred in an infant four months of age, who was admitted in a dying condition and expired a few hours later. The child had been born prematurely, with congenital syphilis, and had been ill for at least two weeks before admission, undergoing "treatment" during this time by the local

TABLE 1 Results of Stool Cultures

Age Group	Number of Cases	Organisms Recovered From Stools	Cases With Positive Cultures	Cases With Negative Cultures	Cases Pos. for B. Paracolon	Cases Positive for Shigellae	Cases Pos. for Salmonella Group
Newborns	8	(1) Shigella paradysenteriae flexner (2) B. Paracolon	5	3	4	1	0
Up to 12 months exclusive of newborns	131	B. Paracolon Shigella p. flexner: Pseudomonas aeruginosa *Proteus ammoniae Proteus mirabilia Proteus morgani *Proteus vulgaris Salmonella paratyphi Salmonella newport	74	57	45	12	6
1 yr. to 5 yrs.	52	B. Paracolon Shigella p. flexner Proteus mirabilia	34	18	18	10	6
School Children	11	Salmonella typhosa Salmonella newport Salmonella typhosa Salmonella newport B. Paracolon Proteus mirabilia Pseudomonas aeruginosa	9	2	8	0 *One patient with several different organisms in the stools.	3
Adults	19	B. Paracolon Shigella flexner Salmonella typhosa Escherichia coli	12	7	7	2 *Also two stools positive for Escherichia coli.	1
	TOTAL		134	87	82	25	16

*These three organisms (E. coli, P. ammoniae, and P. vulgaris) while not considered enteric pathogens, were, in several instances, recovered from stools (and from abscess cavities) under circumstances which might lead one to suspect that their presence was not altogether beneficial to their host.

TABLE 2 Cases of diarrhea, associated with or secondary to parenteral diseases.

Age Group	Parenteral Diseases	No. of Cases	No. With Positive Stools	No. With Negative Stools	Paracolon	Shigeiia	Salmonella Group	Other
Newborns	Congenital Syphilis	2	2	0	1	1	0	
	Prematurity	1	0	1	0	0	0	
	Bronchitis	1	0	1	0	0	0	
Up to 12 months exclusive of newborns	Pneumonia, lobular	9	2	7	1	0	1	
	Pneumonia, lobar	3	1	2	0	0	0	Proteus Morgani (1)
	Measles	2	0	2	0	0	0	
	Otitis Media	1	0	1	0	0	0	
	Tonsillitis	1	0	1	0	0	0	
	Bronchitis	3	1	2	1	0	0	
	Septicaemia	1	0	1	0	0	0	Hemolytic staphylocci in blood culture
1 yr. to 5 yrs.	Bronchitis, acute	8	2	6	2	0	0	
	Pneumonia, lobular	8	3	5	2	1	0	
	Measles	4	0	4	0	0	0	
	Polio-Encelphalitis	1	0	1	0	0	0	
	Encephalitis, acute	1	1	0	0	0	0	Pseudomonas Aeruginosa
School children 6 to 14 yrs.	Tuberculosis pulmonary	3	3	0	1	0	3	
Adults	Ischio-rectal abscesses	1	1	0	0	0	0	
	Syphilis, late, latent	1	0	1	0	0	0	
	Bronchitis, acute	1	0	1	0	0	0	
	Residual monoplegia	1	0	1	0	0	0	
	Diabetes mellitus	1	1	0	0	1	0	
	TOTAL	54	17	37	8	3	4	

Indian medicine man. Chief cause of death was neglect and the lack of medical care. The other death occurred in a three year old girl. She had been ill for a month with measles and "diarrhea" before being brought to the hospital.

Neither of these two deaths can be said to have been caused, directly, by diarrhea. In view of the nutritional status of these Indians, as a group, and in view of the time lag between onset of disease and time when medical aid is sought, this low mortality (2 deaths in 221 cases) may be considered encouraging.

Discussion

Epidemiology. Sewage from this hospital and from the village of Sacaton is discharged into the Little Gila River. The waters of the Little Gila are meant primarily for irrigation purposes, but are also used by these Indians for all household purposes, for swimming and even for drinking purposes, chiefly because of ready accessibility. Further pertinent epidemiological factors have been accurately described by Zander:[1]

"The horse-drawn wagon, and sometimes a truck, loaded with miscellaneous water barrels or cans, covered with a dirty tarpaulin, if covered at all, for its dusty journey of from ¼ to 3 or 4 miles to the inadequate adobe or ocotilla home shack with its nearby wide-open privy of scrap sheet metal or wood, perfectly designed to facilitate the breeding of flies to plague the Indian inhabitants of the unscreened huts and roofed but otherwise open hot weather living, cooking, eating and water storage patio, where the open barrel or clay urn with the tin drinking cup invite the thirsty to partake of the brew, is grossly inadequate and must be corrected if good health for the Indian is to be attained.

"In almost all instances, the home privy at best only serves to screen the timid and modest from the not too persistent gaze of others. It serves only to concentrate the putrid contents of the pit in a convenient breeding spot for flies and maggots which, during adulthood, contribute mightily to the extremely high infant mortality rate and the 'warm weather diarrheas' described to me."

The finding of numerous stools positive for the Paracolon organism is in itself an indication of fecal contamination of foodstuffs and drinking water. This irrigation canal, the Little Gila River, is the prime suspect. Open prives, uncovered water containers, flies and inadequate personal hygiene contribute to the situation. A relatively inexpensive educational program would doubtless work a measureable improvement.

Summary and Conclusions

1. A series of 221 unselected cases of diarrhea, with 2 deaths, is presented and discussed as to etiology and epidemiology.

2. Intestinal pathogens appear to be as readily isolated from the stools of infants and those under one year as from any other age group.

3. Diarrhea, as met with here, in most instances appears to be a bacillary dysentery, but when parenteral disease is associated with diarrhea it becomes increasingly difficult to isolate a dysenteriform organism.

4. The paracolon organism is definitely an enteric pathogen for all age groups.

5. Diarrheal disease is not, apparently, a sequel to functional damage of the intestinal epthelium by a parenteral infection, nor is it, as commonly thought, a "dietary problem" necessarily, or "functional disturbance." As met with here it is a primary disease caused by an enteric pathogen.

6. The sources of these diseases are the polluted irrigation canals, the open privies, the uncovered water barrels, the flies and the lack of adequate education in personal hygiene.

7. There is no room for complacency. Diarrheal disease is not inevitable. It can be largely eliminated by education and by the expenditure of a remarkable small amount of money in relation to the results obtainable.

Acknowledgment

I wish to extend my deep gratitude to H. Gilbert Crecelius, Ph.D., Director of Laboratories, Arizona State Health Department, for all the work he has done in handling the thousands of specimens involved in this series of cases, and for his sound advice.

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Editorials

TREATMENT OF CONGESTIVE HEART FAILURE

The marked improvement in the treatment of patients with congestive heart failure during the past several years has been due to the re-discovery that the primary basis of cardiac edema is sodium retention and second to the more widespread use of the mercurial diuretics. Although Baynard, in 1722, said that "Salt creeps with the chyle into the blood and have no way out but by the urine" it remains for Schroeder, Schemm and others in 1941 and 1942 to popularize the low sodium diet together with liberal intake of water. Although it should be injected here parenthetically that Newburgh in 1930 called attention to the diuretic effect of water alone.

Due to the emphasis that is being placed on the mercurial diuretics the importance of digitalis is being seriously questioned. Indeed, it has even been suggested that congestive heart failure can be adequately treated by mercurial diuretics alone. But, as DeGraff has pointed out a careful appraisal of the mechanism of action of digitalis and of the mercurial diuretics will show quite clearly that one group of drugs cannot be substituted for the other, and both are required for the intelligent management of congestive heart failure. Moreover it appears that digitalis is a more effective remedy in the treatment of early heart failure than are the mercurial diuretics.

Of the digitalis preparations commonly employed digitoxin, although exceedingly popular for a time, has now been largely replaced by digoxin. As has been pointed out digitoxin offered no advantage over digitalis leaf for the treatment of heart failure. Indeed, it is much less desirable than other digitalis preparations because of its slow dissipation and the great danger of prolonged and severe toxicity.

Digoxin which was first isolated from digitalis lanata in 1930 has been subject to considerable clinical investigation and appears to have a relatively short latent period and a short period of dissipation. It, therefore, should be the drug of choice since, if toxicity occurs, it will quickly disappear when the drug is withdrawn. Another digitalis preparation which is being more frequently employed is gitalin which is a watery extract of digitalis purpurea. It apparently has a greater therapeutic range than any other glycoside mentioned, and is employed in advanced cases of congestive failure where the therapeutic dose and the toxic dose of the other glycosides are about the same.

The four most popular mercurial diuretics, namely, mercuzanthin, mercuhydrin, salyrgan and thiomerin, all contain approximately 40 mg. of mercury per cubic centimeter and with the exception of thiomerin, have mercury radical chemically linked with theophylline. In thiomerin the theophylline is replaced by mercaptan. Although maximum diuresis is obtained when these preparations are given intravenously, thiomerin given subcutaneously is almost as effective as the other diuretics given intravenously and has the advantage of being the least toxic. Mercuhydrin causes no great pain when given intramuscularly but is less effective than thiomerin subcutaneously. Since the danger of untoward reaction is greatest when given intravenously, thiomerin is theoretically the most satisfactory of all mercurial diuretics. The oral preparations are inconstant in their action and are, therefore, of limited value. The amount of diuresis is affected not only by the preparations used and dosage but certain other factors such as the amount of physical rest at the time of the

onset and the peak of the diuresis, whether or not the patient is properly digitalized and the concomitant use of acidifying salt. Thus the effectiveness of a mercurial preparation will be increased approximately 25% by the administration of 75 grains of ammonium chloride daily for three of four days preceding the injection.

Not frequently one sees patients with chronic congestive heart failure who do not make a satisfactory response to the mercurials. This has been attributed to the development of renal tubular resistance to mercury. However, Leiter and his associates have demonstrated that it results in part from the marked decreased filtration rate occurring in severe congestive heart failure. This, the administration of aminophyllin 0.5 gm., intravenously 60 to 90 minutes after an injection of mercurial will frequently provoke a good diuresis in patients previously resistant to mercurial. The danger of renal damage from frequent injections of mercurial diuretics has been much exaggerated. Although serious and possibly fatal sodium depletion and dehydration occassionally result from the too enthusiastic use of a mercurial, the pendulum is beginning to swing perhaps too far in the direction of the exaggeration of this danger.

The frequency of administration is dependent upon many factors such as the salt and fluid intake, the physical activity and the type and severity of the heart disease. Rather than give an injection every four or five days, it is perhaps better to give the injection with every four or five pounds gain in weight Although some authorities have placed emphasis on the use of the daily dose of mercurials to bring the attack of congestive failure under control, more conservative individuals have found that if the patient is maintained on a diet containing 1 to 2 grams of salt daily, cardiac compensation can be satisfactorily maintained with a mercurial injection perhaps once in every two to four weeks.

It is now generally agreed that the so-called salt poor diet is ineffectively and that one must restrict the sodium intake in the diet to one or two grams of salt daily This means that no sodium chloride can be used in the preparation of foods, particularly in making bread, and butter or margerine must be salt free or washed. Schemm has recommended an acid ash diet which brings about further excretion of the sodium salt since the natural acids are neutralized by the sodium from the interstitial fluid and the sodium salt is removed in the urine. He also emphasized that with limited fluid intake and with diminished cardiac output sufficient fluids are not provided to the kidney for filtration. He, therefore, recommends from 6 to 8 litres daily. The consensus of opinion, however, is that a minimum of 3 thousand cc. of fluid is required daily and since there may be an appreciable amount of sodium in ordinary tap water, distilled water is recommended. The palatability of the distilled water can be improved by the addition of dilute hydrochloric acid which will aid the ammonium chloride in bringing about a state of relative acidosis.

In summary it should be emphasized that although strict dietary control and the mercurial diuretics have brought about a marked improvement in the treatment of congestive failure, proper digitalization and strict individualization are still necessary for the satisfactory control of the signs and symptoms of myocardial failure.

R. S. F.

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The Case History in this discussion is selected from the Case Records of the Massachusetts General Hospital, and reprinted from the New England Journal of Medicine. The discussant under Differential Diagnosis is a member of the staff of the Massachusetts General Hospital. The other discussants are members of the Phoenix Clinical Club.

A fifty-nine-year-old woman entered the hospital complaining of a mass in the abdomen.

Ten months before admission the patient noticed, after reaching forward a sensation of heaviness in the abdomen occurring about once a month and followed on one occasion by watery diarrhea. Four months later, while lying on her right side, she detected a mass in the left flank that progressively increased in size, but caused no symptoms, except a sensation of weight; at times it seemed to pulsate. Two months before admission she had an attack of low back pain, which radiated upward and was severer than the back pains that she had had for many years. During this period she worked hard and became weak, tired and dyspneic; after a period of rest these symptoms disappeared.

The past history was noncontributory except that she had been jaundiced for one month thirty years previous to admission.

On examination the patient was a well developed, moderately obese woman in no acute discomfort. Multiple subcutaneous nodules were palpable over the arms and thighs. The heart and lungs were normal. In the left upper quadrant of the abdomen was a firm, moderately tender, irregular mass about 10cm. in diameter. It descended with inspiration and was movable on pressure in the left costovertebral angle. Peristaltic sounds were heard in the region of the mass. Pelvic and rectal examinations were negative.

The temperature, pulse and respirations were normal. The blood pressure was 125 systolic, 80 diastolic.

Blood examination showed 14.9 gm. of hemoglobin and a white-cell count of 7400. The stools were negative for occult blood. The nonprotein nitrogen was 15 mg. per 100 cc., and the fasting blood sugar 100 mg. The total serum protein was 6.1 gm. per 100 cc. The serum amylase was 36 units per 100 cc. All urine specimens were negative.

A barium enema done ten days before admission showed passage of barium from rectum to cecum without delay. There was reflux into a normal appearing terminal ileum. No constant filling defect, ulceration or diverticulum was seen in the colon. The ascending colon and cecum was twisted on themselves so that the tip of the cecum lay in essentially the same position as the hepatic flexure. The palpable mass in the left upper quadrant was not attached to the bowel. The palpable mass was distinctly seen on the film. It measured 10 cm. in diameter. The stomach appeared to lie medially to the mass and above it. The spleen was not visualized. A small bowel enema showed the mass to lie in the left upper quadrant, between the stomach and transverse colon, displacing the stomach upward and the transverse colon and upper small intestine downward. An intravenous pyelogram was negative. A gastrointestinal series was negative.

On the ninth hospital day an operation was performed.

DR. THOMAS W. WOODMAN:

The diagnosis in this particular case does not seem to me to be too difficult. For that reason I believe that I can almost depend on "missing it cold." The patient is 59 years of age and the onset of symptoms was 10 months prior to admission to the hospital. She noted a sensation of heaviness in the abdomen and on one occasion this was followed by watery diarrhea. She herself had detected a mass in the left flank that had progressively increased in size but had not caused any symptoms other than a sensation of weight. It seemed to pulsate at times. She had had some back pain and had become weak, tired and dyspeptic but these symptoms did not persist all of the time.

I think that the past history given of jaundice for one month 30 years prior to admission may be of some significance. It is important to note too in the record that this patient was well developed, that she was moderately obese and that she was not in any acute discomfort at the time of examination. I believe that the multiple subcutaneous nodules palpable over the arms and thighs constitute a red herring in this record and

are not significant insofar as the diagnosis is concerned. These multiple sub-cutaneous nodules were in all probability fibromas or lipomas.

The description of the mass itself is of the utmost importance. It was in the left upper quadrant, was firm, moderately tender, and about 10 centimeters in diameter. It was movable on pressure in the left costo-vertebral angle and descended with inspiration. The blood examination throughout is essentially normal including blood sugar, total serum protein and the serum amylase. The urine was negative and the barium enema was negative except for the fact that the ascending colon and cecum were twisted on themselves so that the tip of the cecum lay in essentially the same position as the hepatic flexure. The mass in the left upper quadrant was not attached to the bowel. It displaced the splenic flexure laterally and the transverse colon inferiorly. The stomach appeared to lie medial to the mass and above it. The spleen was not visualized. The small bowel enema revealed the mass to lie in the left upper quadrant between the stomach and the transverse colon. The stomach was displaced upward and the transverse colon and upper small intestine downward. The intravenous pyelograms were negative.

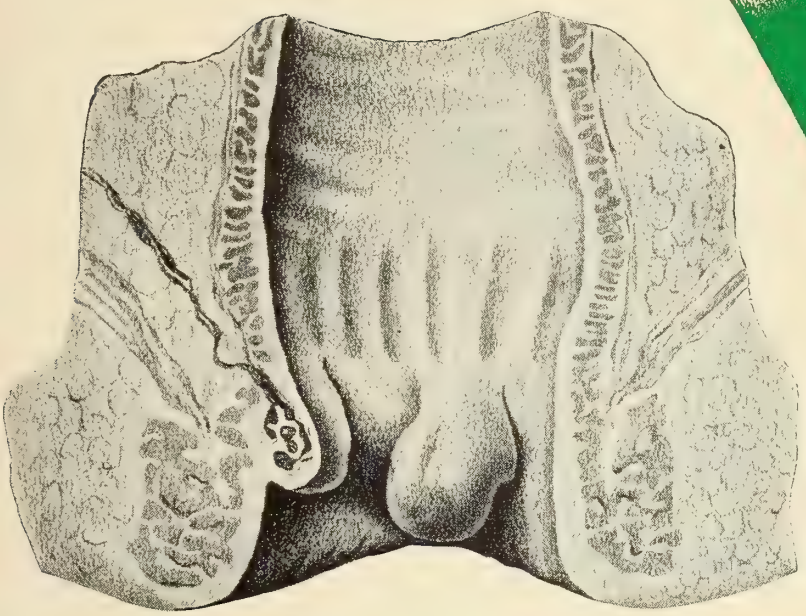
The most logical diagnosis in this case is, to my mind, a cyst of the tail of the pancreas. There are other conditions which do have to be considered. The blood reports are essentially normal and I think we can pretty well rule out diseases of the spleen. If this was an omental cyst or tumor we would expect to find a displacement of the transverse colon different from that given in the record. A cyst of the gastro-colic ligament could give x-ray findings which would fit in with those which have been given to us and this cannot be positively ruled out. Aneurysm of the splenic artery might be considered for a few of these cases have been described and the mass did seem to pulsate. However, an aneurysm in this location would in all probability rupture before it attained the size described, and this type of lesion is practically never diagnosed except at the time of rupture.

The more I went over the record, the more it seemed to fit with the diagnosis of pancreatic cyst. Tumors of the spleen, dissecting aneurysms, tumors of the intestine and lesions of the stomach might possibly be considered but the x-ray findings are such that it seems to me that all of these conditions can be well ruled out without discussion.

Pancreatic cysts occur at any age but they are more often seen in persons about middle life. They may be seen in very young infants and in one series of cases which I studied the oldest was 76 years. There is a lack of knowledge concerning the pathogenesis of the various types of pancreatic tumors and for that reason there is a variance in the classification. Robson and Moynihan have grouped neoplasms as retention cysts, proliferative cysts including the cystic adenoma and cystic epithelioma, hydatid cysts, congenital cystic disease, hemorrhagic cysts and peudo cysts. The pseudo-cyst is the most frequent type of pancreatic cyst and may occur in any portion of the pancreas although it is most prevalent in the tail. These so-called pseudocysts which represent fluid tumors found in more or less close proximity to the pancreas, but not originating in the substance of the gland, are most commonly the result of injury In the particular case under discussion no history of injury is given.

The relationship between gall bladder disease and disease of the biliary system and the development of pancreatic disease has long been recognized. This particular patient did give a history of jaundice 30 years prior to the condition for which she was admitted to the hospital on this occasion. We are not given the x-ray findings of gall bladder and whether there is any etiologic relationship between the jaundice she had 30 years ago and the symptoms that she has now of course cannot be definitely established. I rather expect that at operation this woman was found to have evidence of gall bladder disease as well as the cyst of the pancreas. Most of the pancreatic cysts are benign but carcinoma may develop secondary to cystic degeneration.

The diagnosis of pancreatic tumor is extremely difficult, particularly when the tumor is small. The symptoms and signs are not in themselves significant or diagnostic. Laboratory tests may be of value but are by no means infallable. Pain seems to be the most important subjective symptom but it varies in location. In the majority of cases it is localized in the epigastrium, in some in the left upper quadrant of the abdomen and in some of the patients it is diffused throughout the abdomen. In many of the cases the pain is



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associated with nausea and vomiting. There may be loss of weight and there is constipation in some and diarrhea in others. Jaundice occurs in a relatively small percentage of the cases and is probably due to the fact that there is, rather commonly, an associated biliary system disease with the pancreatic disease.

Practically all patients operated on do give some past history which has a bearing on their illness. Most of these will give a history of transient attacks of pain which varies in duration from 2 days to 2-3 years. The average duration of symptoms however, is about 6 months. Some of the patients give a history of cholecystitis preceding the pancreatic cysts and many of the patients have noticed a gradual increase in swelling in the abdomen. The physical examination usually reveals these patients to be well-nourished, although a small percentage of the cases are emmaciated.

Cysts of the pancreas are as a general rule relatively immobile, but if they are situated in the tail of the pancreas they are more apt to be freely moveable. Roentgen examination is of major aid in the diagnosis of cyst of the pancreas. When the cyst is situated in the head of the pancreas there is commonly an enlarged duodenal curve. Too, the displacement of the duodenum and the small intestine points toward the diagnosis of cyst of the pancreas. When in the tail of the pancreas the x-ray findings, as are given in the record of this case, are of great value in diagnosis. The picture after operation is characteristic. The tumor usually presents itself as a smooth, relatively immobile hemispheric and semi-fluctuant swelling. When it is aspirated it yields a rather sanguineous fluid and in some cases globules of oil can be found in the fluid. The size of the pancreatic tumor is quite variable. It may be 4-5 centimeters in diameter and can run up to 30 centimeters in diameter or more. It may be of such size that the tumor extends into the pelvis and contains several litres of fluid.

Cyst-adenoma represents a true form of pancreatic tumor but this type of neoplasm is not particularly common. It is characterized by papillary formation arising from the inner lining of the cyst. Retention cysts of the pancreas result, in all probability, from some form of obstruction to the pancreatic duct, while inclusion cysts develop in the pancreas from cells which are not normally there but which were incorporated in the organ from some extraneous tissue by a faulty development of embryonic life. Pseudo-cysts of the pancreas with carcinomatous degeneration are of rare occurrence. At the Mayo Clinic May Horner and Matson reported four cases of carcinomatous cysts among 8 patients with pancreatic cysts treated surgically. In another series of seventeen cases which I reviewed carcinomatous degeneration occurred in only one.

My diagnosis in this case is cyst of the tail of the pancreas. There may or may not have been carcinomatous degeneration, however I think that the chances are that the cyst was benign. I believe too that, if the gall bladder and bile ducts were examined at the time of surgery, gall bladder disease existed either with or without stones.

DIFFERENTIAL DIAGNOSIS

Dr. Merrill C. Sosman: I should like to have more details about the nodules found over the arms and thighs. How large were they? Were they freely movable? What was their distribution? Was there any pigmentation associated with them? I assume that they were neurofibromas.

Dr. Benjamin Castleman: There is no further information recorded. I should agree that they were probably neurofibromas.

Dr. Sosman: "The heart and lungs were normal". I assume that statement was based on the usual method of examination with the stethoscope, which is not reliable in spite of what one of your doctors said at one of the meetings several months ago. Since there are no x-ray films of the chest, we must accept the opinion, but not as a fact.

The serum amylase was 36 units per 100 cc. At the Peter Bent Brigham Hospital anything up to 100 units is normal. This was well below the border line of abnormality

Submitted with this protocol was this series of x-ray films. There are several facts that can be determined from the x-ray studies, and opinions can be deduced from these facts. I think that we should carefully separate the two. First there is a barium enema, then a small-bowel study, then intravenous urograms, finally, a gastrointestinal series. I was a little intrigued in going over these films to find that all of them have the same identifying number but one. I assume that you have a unit number for these patients, and I wonder if this film belongs to the group.

Dr. Dean Crystal: The patient was seen in the Out Patient Department and given a number, and was then transferred to the house and given another number before it was realized that she was the same patient.

Dr. Sosman: We can check that statement by observing the details of the spine—the intimate, personal private anatomic details. As a matter of fact, x-ray films are a good method of identifying persons during life and even after death, and they have frequently been used for that purpose. If one compares the transverse processes, the articular facets and the details of the fourth and fifth lumbar vertebras in these films one finds that they are identical, so that the statement is correct.

The outline of the mass is best seen in this film of the kidney and bladder region, which preceded the intravenous urogram. There is a fairly sharply outlined mass in the left upper quadrant, which also shows well in the barium-enema film. The protocol states that the mass was irregular to palpation, whereas the shadow on the x-ray film is smooth and distinct in outline, making it look like a cystic mass. I agree, however, with the report that the first barium enema was normal. There is no evidence that the tumor arose from the colon. The stomach is displaced upward. There is a large vacant area here, which spreads the duodenal loop. It looks as if the mass had moved to the right side. I cannot tie that up with the examination when it was said that the mass was in the left upper quadrant. I should like to ask if the mass moved.

Dr. Laurence L. Robbins: Dr. H. P. Mueller, who did the fluoroscopy—in fact, I believe that he interpreted all the films—was certain that each time he examined the patient that mass was in a different part of the abdomen.

Dr. Sosman: So it was a freely movable mass, and I assume that the mass in the right upper quadrant below the antrum of the stomach, lying above the colon and distending the duodenal loop, is the same one that we saw in the left upper quadrant.

The intravenous urogram is essentially normal, except that the upper calyxes of the left kidney are not well filled. There are two small areas of calcification that might be interpreted as the tips of these calyxes since they are in proper relation to the outline of the kidney. As a matter of fact, the two shadows are present in the plain film before the intravenous urogram was made. I assume that these two small calcified areas were in the mass and were not part of the kidney.

Finally the gastrointestinal series shows a well filled stomach, with normal nucosa and normal peristaltic waves, and a normal duodenal loop. I consider this jejunal loop to be abnormal. It is a little too large, and the rugae on the left side adjacent to the mass are not entirely distinct. Going back to the small bowel examination, I see a loop of small bowel that I think is larger than than one ordinarily sees.

To sum the whole thing up, the patient came in with a mass in the left upper quadrant, and after nine days of hospital study the diagnosis was still a mass in the left upper quadrant. I do not believe that there is any evidence here to indicate the exact origin of the mass. From these examination, however, we do know that it was not a part of the stomach and that it did not arise from the colon; if this dilated loop of small bowel means anything, it could have arisen from the wall of ileum. We have to consider, then, a tumor of the small bowel, a mesenteric cyst, a tumor of the left kidney (with no more distortion of the renal pelvis than we have here, it would probably have to be a large benign cyst), a cyst in the tail of the pancreas and, finally, an ovarian cyst with a long pedicle These are the five major considerations. I believe that we can rule out the spleen because the tumor does not displace the colon in the usual manner. An enlarged spleen almost invariably displaces the splenic flexure downward and medially, where as here the mass lies medial to the splenic flexure. If it is spleen, it would have to be an aberrant spleen, and presumably a tumor of an aberrant spleen.

Going back to the small bowel and jejunum, there are four or five conditions that are commonly found there. One is reduplication, which almost always is found in children. I believe that it is quite rare to see it in a woman of fifty-nine. Then there are the sarcomas—leiomyosarcoma and spindle-cell tumors, but in such cases there is almost invariably a history of ulceration and hemorrhage. This patient had no anemia and no blood in the stools. The episode of weakness, fatigue and dyspnes could have indicated a massive gastrointestinal hemorrhage, but she failed to notice tarry stools. Lymphoma is frequently found in the small bowel, but that also is likely to cause hemorrhage, although not so

often as the spindle-cell sarcoma; furthermore, there is usually evidence of the disease elsewhere. Finally, we must consider a neurofibroma arising in the wall of the bowel or one of the nerves in the mesentery. She had subcutaneous neurofibromas, but I do not remember ever having seen a large neurofibroma in the abdomen. This is still a possibility in spite of that.

Mesenteric cysts are fairly rare. A cyst of unknown etiology with etiology with chylous fluid or serous fluid is occasionally seen. And there are the so-called "enteric cysts"; the pathologists give them this name but they are probably the same as the reduplications that they talk about at the Children's Hospital. There are also extremely rare nephrogenic cysts, which occur in the bowel remnants of the wolfian body, and a dermoid cyst, not associated with the ovary, is occasionally found. In fact, the two areas of calcification are suggestive of the latter.

I do not believe that it was a cyst of the pancreas because it was so freely movable and because of its location. It could have been a cyst of the ovary with a long pedicle, and that might account for the severe attack of pain in the back radiating upward, assuming that the previous ones that she had had many times were from the same cause. That would nicely explain the pains—torsion of an ovarian cyst with a long pedicle.

After looking over all these possibilities, I have no particular opinion concerning what it really was. I have ruled out a good many things, but there are still some even more remote possibilities, such as carcinoid of the small bowel or argentaffin tumors. These are found in association with multiple neurofibromas, but the carcinoid or argentaffin tumor is extremely small and rarely undergoes cystic degeneration; in all probability it can be ruled out. I have narrowed the field down to two main possibilities—ovarian cyst with a long pedicle and enteric cyst in the wall of the small bowel. Ovarian cyst must be considered, particularly because of the remarkable mobility of the mass. I believe that we can rule out cyst of the kidney. If this is the same tumor on the right, we can rule out cyst of the pancreas. I shall have to make a double-barreled diagnosis, so to speak, instead of pinning all my faith on a single one, that is, enteric cyst or ovarian cyst.

Dr. Robbins: We followed the same line of reasoning as Dr. Sosman. I do not believe that we were impressed with the appearance of the jejunum. Dr. Mueller said that during fluoroscopy the jejunum appeared to be normal. I thought that it probably was a cyst in the gastrocolic ligament because of the way it so consistently maintained its relation to the colon and stomach.

CLINICAL DIAGNOSIS

Pancreatic cyst

Dr. Sosman's Diagnosis

Enteric or ovarian cyst.

ANATOMICAL DIAGNOSIS

Multilocular cystoma of pancreas.

PATHOLOGICAL DISCUSSION

Dr. Castleman: Dr. Crystal, will you tell us what you found at operation?

Dr. Crystal: We found a large tumor with a granular surface pushing the gastrocolic ligament forward. It proved to be a hugh multilocular tumor of the neck of the pancreas, the portion that lies to the left of the notch for the mesenteric vessels. It could not be dissected free from the pancreas, and yet it appeared to be an encapsulated benign tumor. It was possible to transect the pancreas in two places, one just to the left of the uncinate notch and the other just to the left of the tumor, at a distance of about 5 cm., and to lift the tumor out, preserving intact the splenic vessels, which we did not have to tie. The question then rose whether or not we should remove the tail of the pancreas and the spleen along with the tumor. We elected to leave the pancreas and spleen; the latter was done because of our observation on several occasions that incidental removal of the spleen has been followed by thrombosis of the splenic vein.

The patient has done well. I do not know whether she will develop a pancreatic fistula. She has had fever every day, and I imagine that a fistula may eventually appear, possibly lasting for several months.

Dr. Castleman: The mass that we received was well encapsulated and quite nodular, but the nodules were smooth, not granular such as one may see in ovarian carcinoma. These nodular areas were translucent, pinkish and gelatinous, being quite similar in appearance to the throid tissue. A cross section of the tumor revealed varying sized multilocular cysts filled with viscid gelatinous semisolid material resembling colloid.

Histologically one section showed a bit of pancreatic tissue separated from the tumor by a thick capsule. The mass was made up of cysts of varying sizes, separated by fibrous connective tissue. The lining of these cysts was flat to low cuboidal epithelium, and occasionally there was a suggestion of papillary projections. This is the appearance that we have seen a number of times in so-called "cysts of the pancreas." I believe that the lining is epithelial, although it is conceivable that it is endothelial, the tumor being a form of lymphangioma. Although they are often called "cystadenomas," I prefer the term "cystoma" because they really do not form glands. They are simply spaces with single layers of epithelium, occasionally high and with a papillary arrangement There was no evidence of malignancy.

TOPICS OF CURRENT MEDICAL INTEREST

RX, DX, AND DRS.

By GUILLERMO OSLER, M.D.

A recent paragraph here about the **oral effectiveness of adrenal cortex substances** is still in press, but by now we have heard that such a preparation is available, that it works and that the cost has recently been cut by 50 per cent. . . . Our informant pushed a bottle across the desk and said "This is it—for now". Cortone (Cortisone) Acetate. A 25 mg. tablet is almost as effective by mouth as by injection. That amount is often enough for maintenance after the first effect is obtained.

The 'Medical Annals of the District of Columbia' is an excellent journal. It has numerous unique features. It has a page reserved for the president of its medical society, as do many other journals. This is usually filled with warnings, reflections, and diatribes. . . . In June of this year DR. WALTER FREEMAN also ENJOYED himself. As president he wrote an article called "Psychological Plagues', concerning The Master of Evil, and his three sons, Hurry, Flurry, and Worry. The unique part was that it was written in a dozen stanzas of FREE VERSE!

CHEST X-RAY CASE-FINDING in a large western city is now able to expect certain fairly regular results. About 22 of every 1,000 persons are referred to their physicians from the Retake Center. Four of them are suspected of heart disease; four of non-tuberculous lung disease; and 14 of tuberculosis. Of the 14, 11 will be found to have inactive disease, 2 will have disease of questionable significance, and 1 will have active disease. This equals 0.1 per cent of all surveyed—or potentially 3,000 in Los Angeles. . . . As the patients themselves ask "Where they going to put 'em?"

Latin American politicians often have a Doctor's degree of some sort. The situation is rare in Estados Unidos, especially for an M.D. . . . Arizona once had a country physician in the top job when DR. MOEUR was Governor. He was frank, outspoken, non-political, and was re-elected once.

Most physicians who use AUREOMYCIN know that there are at least two ways to minimize the nausea which may occur. The ALUMINUM HYDROXIDE jells (gels) are of help, but they reduce the blood levels of aureomycin. MILK also decreases G-I irritation and vomiting, and has no effect on absorption of the drug.

Chloramphenicol (Chloromycetin) seems to be the answer to H. INFLUENZAE MENINGITIS. The mortality rate has previously been lowering, the other therapy has been tedious. The new drug, by mouth, clears the spinal fluid within 24 hours, and the mortality of Prather and Smith was zero.

TERRAMYCIN has joined aureomycin as a valuable aid in amebiasis. . . . The handling of terramycin research has been good, rapid, and modern. A recent symposium included the reports of 28 research teams, with the invaluable DR. CHESTER KEEFER as chairman. In addition to being a keen clinician, a fine teacher, and a versatile author, Dr. Keefer has played a wonderful part in correlating chemotherapy and antibiotic results. . . . The average physician can probably never thank him, so we hope that plenty of organizations do.

The little red pamphlet from THE HEMOPHILIA FOUNDATION, INC., has quite a few implications, most of them sad. . . . The pamphlet probably gets tossed out at once by most physicians; only the few with the disease, or who have patients with that malady, would need to use the services or think of contributing. The disease doesn't grossly deform, doesn't produce an infectious hazard, isn't as numerous or pathetic as most 'foundation' diseases . . . and how many physicians know that there is a therapy of sorts for it?

After following the progress of KHELLIN, and mentioning a trade prep. ('Visammin'), and then 'Eskel', we can now report a quick success with the latter. . . . Only two cases, true enough, but it allowed the withdrawal of numerous adrenalin hypodermics and a nightly aminophylin suppository. Nausea is rare if it is used only 2 or 3 times a day.

While speaking of devices and gobbledegook, we must not miss the wonderful series which is manufactured by a Chicago company—'Evaporometer', 'Aquatrator', and 'Precision-Dow Dual Recordomatic Titrometer'.

The panel of speakers for the SOUTHWESTERN MEDICAL ASSOCIATION meeting in Phoenix (Oct. 26-28th) is, as our ten-year old says, 'hot and slick'. . . . Each of the speakers is about as well qualified to speak on his specialty as anyone in the U. S. All have written well on their subjects. . . . Some may find old friends in this area, but few will find more former colleagues and students than DR. JOE GALE of Wisconsin, who has known many Arizonans at St. Louis, Michigan, San Francisco and Wisconsin. . . . Incidentally, he is a Professor of Surgery, not Medicine.

A wonderfully unique and refreshing bulletin has been received from a colleague. It bears the date line of Galveston, Texas, July 1950, and the heading 'Post or Wastebasket As You Wish! Calling Attention To: Items of possible interest to friends of Chauncey D. Leake'. . . . Mimeographed on both sides of a single sheet of paper is a series of sentences (usually only one line long) which comment on or review medical articles, medical books, or an occasional non-medical publication. Many of these are obscure or of limited circulation. They all contain the brevity and wit and expressions of Dr. Leake, a famous pharmacologist, medical educator, historian, and author—and a fabulous reader, as one can plainly see.

The use of HEPARIN to prevent thrombosis and other potential coagulations once was more difficult than the use of dicumarol, even though the test for the latter was more difficult and its effect was longer. . . . Heparin once had to be given by vein, and constantly; then it was given at intervals, and into the muscles; now it can be given every 12 hours by 'deposit'. . . . The fanciest and most foolproof set-up is 'Depo-Heparin' (Upjohn). The package includes the drug; a disposable needle-and-ampoule device; a coagulation tube, with a cardboard holder for repeated tilting; and the usual instructions. . . . No technician is included, but one is hardly needed.

We will probably be hearing and seeing a lot about an antiseptic called 'Bactine'. It is made by the Miles Laboratory which does not spare the horses in favor of modesty. . . . It is said to be gentle, colorless, non-staining, odorless, deodorizing, anti-pruritic, antiseptic for hours, a detergent, cooling, anaesthetic, penetrating, and anti-fungal. . . . The chemistry is also a shotgun, since it contains Di-iso-butyl cresoxy ethoxy ethyl dimethyl benzyl ammonium chloride; Poly-ethylene glycol mono-iso-octyl phenyl ether; Propylene glycol; Chlorothymol; Alcohol; Camphor; Menthol; Essential oils and (of all things) water. . . . How can one be sure of the relative qualities of such a preparation is a problem not solved at the present time.

There must be some special sort of point in a recent item about PHYSICAL THERAPISTS. An Arizona chapter of American Association for Physical Therapy has been formed. . . . There are two members from Whipple, 13 from Phoenix, and 14 from Tucson. Probably the item could mean that when they are better organized they will have better national contacts, or that organization means the presence of qualified members (We can be sure, from the figures, that the origin of the society was in Tucson!).

A chronic vaginitis can be a stubborn lesion to cure. MONILIAL VAGINITIS is almost always tough. . . . GYN people say that the best therapy begins with a cleansing of the vagina and a poudrage of the entire surface. . . . Powdering is not usually easy or convenient, but the advent of a "plastiflex' bottle has changed all that. . . . One company has put out 'Naprylate', a Council-accepted combination of sodium and zinc sales of caprylic acid, in powder form, in the plastic insufflators. We don't know about the therapeutic effects, but the convenience is wonderful.

NEWS ITEM

Dr. and Mrs. Kenneth C. Baker returned from Chicago where Dr. Baker attended the annual meeting of The American Academy of Dermatologists and Syphilologists which was held at the Palmer House December 2 to 9 inclusive.

A HEALTH OFFICER LOOKS AT A MENTAL HYGIENE PROGRAM

By J. P. WARD, M.D., M.P.H.
Director Arizona State Department of Health
Presented to the
New Mexico Public Health Association
May 17, 1950

Dissatisfaction is the prelude to progress. Our grandmothers were happy if they had a cistern under the house and a pump directly over the kitchen sink. Today the modern housewife wants an automatic dish washing machine. This is good—it is progress.

As soon as a standard of living is shown to be possible, all people scramble to attain that standard. When the majority of us have attained such a standard of living, someone discovers an even better standard, and we all work to attain that. It is the constant striving for improvement that makes the impossible of yesterday the routine of today. So it is in public health.

A hundred years ago people knew that a large number of their babies would die long before they were able to walk. Every generation had seen sweeping epidemics that killed men, women, and children and wrought more havoc than wars. The sight of a baby choking to death with diphtheria was one of the perils of parenthood in the not too distant past. It was the anxiety of the people over the killing epidemic diseases that made them first willing to spend public money in an effort to improve health conditions. Public health was born as the result of epidemics of contagious diseases. The work of the public health people in their fight against germs has been so successful that man has now replaced germs as the principle destroyer of mankind. This means that public health workers, if we are to continue to protect our people's health, must focus more attention on the non-germ diseases.

This does not mean that we have finished our fight against the germs, nor does it mean that we should relax our defenses, but it does mean that we must take cognizance of an even greater menace to health and happiness. Public health workers have never been noted for evading a problem merely because of its difficulties. And we must not dodge our responsibilities in combatting conditions concomitant with our improved living standards. We must interest ourselves in the general welfare of our people, the prevention of accidents, the prevention of deaths from cancer and heart disease. These and all other preventable human hazards, be they contagious or not, must be faced and fought by public health workers. The mental and emotional disease are a major health hazard and are largely caused by man's treatment of his fellow man. The size and nature of the problem of mental health makes it one of the most difficult challenges our profession has had to meet, but meet it we must as it is a health problem of public concern, and hence a public health problem.

Dr. Harry Mustard has said: "A health problem becomes a public health responsibility if or when it is of such character or extent as to be amendable to solution only through systematized social action." Certainly mental health is a public health responsibility according to this definition.

The prevention of the emotional disorders or the improvement of the emotional stability of all of us is such a large order that it cannot be done except through systematized social action if we are to accomplish any results. Dr. Mustard further says that the relative importance of the problem varies with the hazard to the population exposed. The population exposed to emotional disturbances is our entire race. The emotional disturbances do not cause as many deaths directly as do some other conditions, but when we consider the many deaths that may be caused indirectly by emotional imbalance, and when we consider the terrific drain on our economic and human resources, the problem of mental health does deserve a place of importance as a public health problem. It is both actual and potential. When we consider that half of our hospital beds today are occupied by sufferers from mental diseases, we can see that the actual problem is very large indeed. When we also consider the many borderline cases and the fact that all of us are to a more or less degree susceptible, the potential is

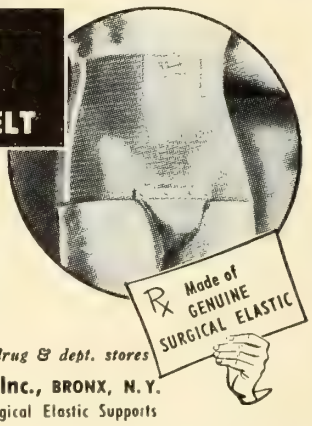
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enormous. If, then, we are to accept Dr. Mustard's statement as to what constitutes a public health responsibility, we cannot ignore the fact that the emotional disturbances do come within our province.

Another reason that official health agencies should seriously consider the emotional disturbances, is the fact that they are probably the most expensive ailments of our society. Probably more official tax funds are spent as the result of emotional imbalance than for any other human ailments. The mere cost of incarceration of the inmates of our mental institutions in many states is the greatest tax expenditure for health services. An even greater cost of emotional maladjustment is the expense of maintaining the inmates of our penal institutions. Not only must we consider the expense of the upkeep of the inmates of these institutions, but also the results of the crimes for which they are incarcerated. A thorough study of case histories would probably reveal the fact that considerably more than half of the inmates of our mental hospitals, and 90% of those in our penal institutions are there because of some mental or emotional disturbance that could have been prevented had it been properly handled in its incipient stage. I do not believe it is possible for me to overemphasize the public health importance of these conditions. The fact that the people throughout the nation are rapidly becoming aware of the possibilities of preventing many of our emotional crises is evidenced by the fact that the principle theme of the Mid-Century White House Conference is The Mental, Emotional, and Spiritual Growth and Development of Children and Youth.

A public health conception of its responsibilities in mental health is nothing new. Some of the more progressive states and cities have been conducting child guidance clinics and other forms of mental hygiene programs for many years, but it has only been within the last few years when Federal funds were made available that the poorer states have been in a position to seriously consider such a program. Many of us health officers are somewhat nonplussed at this new program that has been thrown at us. Our first reaction may be one of resistance. We may feel that it is not fair to expect us to organize a program for a group of diseases with which we are unfamiliar, but when we recognize the importance of the problem and when we further recognize the preventive possibilities we cannot escape the fact that it is our responsibility. But you may ask what can the health officer do for the mental diseases? Should he go back to school and study three or four more years to learn psychiatry? He knows nothing about the care, treatment, or even the diagnosis of mental diseases; how can he put on a program for their prevention? My answer to that is that the same technique that has been used so successfully for the improvement of our infant mortality, and our sanitation program should be tried in the mental health program. The same techniques that we use in the bettering of the conditions of pregnancy can be successfully used in the improvement of our mental health. The health officer is not an obstetrician. He does not deliver babies. What he does do is to make facilities available for the early care of the prenatal patient and teaches her to use these facilities. He teaches her not to put off a visit to her doctor or clinic until eclampsia develops but to seek help and advice early. This same technique has been successfully used in all of our public health programs, and I believe that it would prove successful in a campaign to improve our mental health. We can encourage communities to provide mental health facilities. We can teach our community leaders, our teachers, and our parents that emotional problems can be reduced. We can see that our people know the difference between ethical adequately trained personnel and quacks. We can teach them that it is no shame to be seen in a psychiatrist's office; we can teach them the fact that the psychiatrist is as much a friend as is any other doctor. We can educate people to seek the help of a competent psychiatrist early in emotional upsets and not to wait until such time as a tragedy develops.

We have in our group of medical and allied professions certain specialists who are trained in the treatment of this vast group of mental diseases. We health officers on the other hand are trained in the prevention of all types of human ailments. It was inevitable then that eventually the paths of these two specialists would merge. The surprising thing to me is not that the people working in the field of mental hygiene and the people working in the field of public health have at last discovered the fact that they have much in common, but the surprising thing is that this fact was not more fully



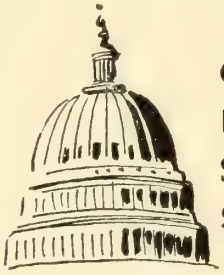
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recognized years ago. It is nothing new for health officers to become interested in certain specialized fields and interest other specialists in the field of prevention of illness. A hundred years ago the doctor could not see where his training had anything to do with that of the engineer, and yet the health officer has brought the two professions together in public health, and the engineer of today is responsible for much of our improved mortality conditions. Certainly when Florence Nightingale started the profession of nursing she was thinking in terms of training young ladies to care for the sick. That is still the primary goal of all nursing training schools, but it was the health officer who saw that he could take these women and train them in the even more important field of preventing illness in the first place. As a result we have our public health nurses who are the very backbone of any public health program. The health officer himself must be a jack-of-all-trades; he must depend on others on his staff, or on consultation available to him for various specialized knowledges. The health officer must be the administrator and coordinator—not a specialist in all fields. We have tuberculosis specialists who have had public health training to direct the program against tuberculosis. We have public health nurses who have had additional experience in tuberculosis to act as consultants to the public health nurses in the fields. The same thing applies to our venereal disease program, our maternal and child hygiene program, and it will have to apply to our mental hygiene program. The health officer will not be expected to substitute as a psychiatrist, but he will have to have available either on his staff or as a consultant, a psychiatrist, a psychologist, and psychiatric social worker, and nurses with particular training in psychiatric problems. The job of these consultants will not be to treat sick people any more than the job of the director of maternal and child hygiene is to treat sick mothers or infants. Their job will be to give in-service training programs to the public health nurses and health officers so that they in turn can know a little more about the basic causes of emotional disturbances and can practice a little better mental hygiene techniques in their every day dealings with their clients. They will also provide health education in their specialized fields.

The effect of emotional disturbances on physical health is very well brought out by an experience of Dr. Henry Schumacher's in his young days as a resident physician in a hospital ward caring for the babies of unwed mothers. It illustrates what we health officers would call an epidemic. In this hospital it was the practice to take the babies away from the mothers immediately after they were born and put them in this isolated section of the hospital where they did not allow the young student nurses to take care of them (it was thought that the contact with illegitimate babies would be bad for the student nurses' morals). These babies were cared for by a very inadequate staff of aged spinsters who fed them from bottles and gave them a minimum of handling. Their illness rate and their death rate were terrific. In an attempt to reduce their mortality rate it was decided to try feeding the babies on acidolphus milk, but as you all know the acidolphus milk is very thick and does not run freely through the ordinary nipple. This feeding process took so much time that it was necessary to change the hospital rules and have the young student nurses come over and take care of the feeding, in spite of the moral danger to the nurses. The babies immediately began to gain weight and exhibited a very marked decline in the mortality rate. At first, of course, this was attributed to the acidolphus milk, but later when regular formulas were reinstated but feeding was continued by the student nurses who took time to give them a little affection along with their nursing, it was found that the children continued to do so well as on the acidolphus milk. It was rather dramatically demonstrated that the marked improvement in their health conditions was due merely to the love and affection and fondling that they had previously been deprived of. The modern health officer is not likely to have the opportunity of observing such an epidemic, but he and certainly the public health nurses will see many isolated cases of infants failing to gain weight and develop normally as a result of the lack of mother love to which every infant is entitled.

We have all seen the cases of the delinquent adolescents who were sent to the reform school because they refused to conform to our social standards. But have enough of us so-called experts in epidemiology and prevention taken the time to determine the cause of their anti-social behavior, or concerned ourselves with the even-

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tual outcome? I tell you fellow public health workers that those youngsters have a preventable disease! Except for the feeble-minded and organically diseased most of the mental illnesses are preventable and it is certainly our job as experts in the field of prevention to take the lead in this program of preventing them.

We must take the lead because we are expected to be leaders in our communities. This is a program that our people want, and if we don't assume the leadership other groups less qualified will. We have the contact with all ages, and especially with the very young. We have the confidence of the people, and we have the "know how." What better place could anyone look for to start teaching the basic fundamentals of emotional stability than with prenatal classes? It is important for health officers and nurses to teach their prenatal patients that certain of their fears and emotions during the state of pregnancy are to be expected, but the public health worker should do everything possible to reduce these emotional upsets due to pregnancy. This is also the best time in the world to instruct the future mother in the importance of early care for the emotional needs of her infant. We take advantage of this time to instruct her in the care of the future child's physical well-being, but we should also take advantage of this entree to teach her the importance of the early days of life in the molding of the child's emotional stability. We also see these children together with their mothers at our infant and preschool conferences, we also see them in the schools, and public health workers should be among the first to recognize poor emotional treatment of children and infants. We take advantage of our contact with this group to try to prevent smallpox, diphtheria, typhoid, the enteric diseases, influenza and everything else, and it is only right that we take advantage of our contact with this group to prevent the emotional disorders also. But not only is it important that we prevent mental illness; it is also important that we promote a positive emotional health. Certainly there is much to be desired in the emotional stability of all of us, and anything we can do to improve it in future generations will undoubtedly be to our credit when that Great Bookkeeper audits our final account.

A mental health program will not be a sensational one. We will not expect to show outstanding results immediately. A mental health program should not be likened to immunization for smallpox which can be completed today, and epidemics stopped tomorrow. It will probably be more like our educational system where the child is sent to school today, but the community does not begin to reap the benefits of its expenditure on his education until 12 to 16 years later. The fact that we cannot expect to see final results should not lessen our enthusiasm.

But not only can, and should, the health officer contribute what he can to the mental hygiene program, he should also use the people trained in mental hygiene to help him in the program that he now operates. We all know, for example, that if we could change certain mental attitudes we could materially reduce our venereal disease rate, not only by making promiscuity less prevalent; but also by the proper use of mental hygiene methods we could undoubtedly get more infected people under treatment and keep them under treatment until they were cured. This of course works both ways: while we need the help of the people trying to combat the mental illnesses to help us in our VD treatment program, our VD treatment program certainly helps in reducing the number of mental defectives resulting from syphilis.

How about tuberculosis? We know that the emotional shock to the patient of discovering that he has tuberculosis is a severe one. It is as much our business to combat this emotional shock as it is to treat the tuberculosis itself. If we can improve our techniques so that we can make our TB patients take a more rational view of their illness we can secure their cooperation much better in the treating of the individual case and also in the prevention of future cases. We all know that it is an expensive process to hospitalize an active case of tuberculosis only to have him dissatisfied with his hospitalization and leave against medical advice after only a few weeks or months of treatment. The reasons for patients leaving tuberculosis hospitals against advice are nearly all emotional, and it is our job to meet those emotional crises as well as to treat the tuberculosis itself. Why is it, for example, that the tuberculosis rate in mental institutions is always very high? Is it altogether due to the fact that most mental institutions are crowded and offer close contacts, and therefore facilitate the spread of tuberculosis, or is it not also possible that the diagnosis of tuberculosis proved the disorganizing blow to emotion-


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ally unstable personalities. I don't know the answer to that question but it is certainly an interesting one for some research.

Certainly the mental attitude of a crippled child who is not able to run and play with his fellows deserves special attention and special consideration. His mental attitude as well as his crippling condition must be intelligently treated if we are to make him into the useful citizen that we expect him to be. So not only can we public health people make a contribution to the mental health program, but the mental health people can make a definite contribution to our existing program.

Mental health is a public health responsibility. The public health people and the mental hygiene people have much in common, and it is fortunate that they are at last beginning to see where their interests merge. Because of the more diversified training and the wide scope of their vision, it is up to the health officer and the public health worker to go more than half way in encouraging the mental hygiene specialists to join forces with us. We public health people must realize that they have much to offer in making our communities healthier, wealthier, and happier, and we must make them realize that we welcome their help toward accomplishing the purposes for which we have always worked and shall always continue to work. Being aware of the fact that their talents can and should be used in the field of public health. And being aware of the fact that my training in public health will allow me to assist them in accomplishing their program, I say to them, "Welcome to the field of public health." I firmly believe that our two specialities working together as one can contribute more to the health and happiness of our people than either of us could working separately.

PERSONAL NOTES

Dr. Carlos C. Craig, Phoenix, attended the Dallas Clinical Club annual meeting, in Dallas, Texas October 9-11th.

The October Staff meeting at St. Joseph's Hospital, was held October 6th and *Dr. Thomas Bate*, Phoenix, spoke on "Hemangioma of the Tendon Sheaths."

Dr. O. O. Williams, Phoenix, attended the annual meeting of the American Society of Clinical Pathologists, Chicago, Illinois October 16-21. *Drs. Ralph H. Fuller*, and *George O. Hartman*, Tucson, also attended this conference. *Dr. Geo. O. Hartman*, of Tucson, also attended the meeting of the American Association of Blood Banks just preceding the above meeting in Chicago.

Dr. Chas. W. Sult, Jr., formerly of Phoenix, has established offices for the practice of Neurology and Psychiatry at La Jolla, California.

The October meeting of the Staff of St. Monica's Hospital, Phoenix, was addressed by *Drs. W. A. Brewer, Otto L. Bendheim*, and *Raymond J. Jennett*, all of Phoenix. Two unusual chest injuries were discussed by *Dr. Brewer*, while *Dr. Bendheim*, spoke on the "Phantom Limb Syndrome". *Dr. Jennett*, presented a case of "Abdominal Pregnancy Delivered by Caesarean Section."

Dr. Frank J. Milloy, Jr., Phoenix, interrupted his four year surgical residency at the Cook County Hospital, Chicago, Illinois, to go on active duty with the U. S. Navy. He has left for the Phillipine Islands.

The October meeting of the Staff at Good Samaritan Hospital, Phoenix, Arizona was addressed by *Dr. John Eisenbeiss*, Phoenix, who presented a case of "Rabies". *Dr. Wm. F. Schroeder*, Phoenix, gave a monograph on "Congenital Atresia of the Intestines", and presented a case.

Drs. Michael J. O'Connor and *Joseph M. Kinkade*, of Tucson, and *Drs. David E. Brinkerhoff, Paul H. Case, Archie E. Cruthirds*, and *Clarence C. Piepergerdes*, all of Phoenix, attended the meeting in Chicago, Illinois, October 6-12, of the American Academy of Opthalmology and Otolaryngology.

Dr. Louis B. Claypool, Phoenix, is going on active duty with the U S. Army, January 2nd at Williams Field, Arizona.

Dr. Geo. E. Randall, Phoenix will not go on active duty having been given an indefinite deferment. Dr. Randall served nearly three and one half years overseas in World War II with the U. S. Army and is a member of the Organized Reserve.

Dr. James L. Riordan, has taken over the head of the X-ray Department at St. Joseph's Hospital, Phoenix.

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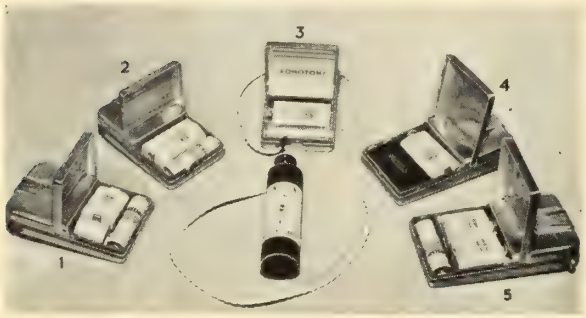
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Peculiar as it may be, identical words in the English language take on different meanings or thought patterns to different people in different parts of the country. For example, "taking stock" to a merchant means, perhaps, an accounting of his inventory; to a rancher, an appraisal of his grazing land and the size and breeding of his cattle; to a banker, a balance sheet of assets and liabilities, or perhaps an investment in some company. To the doctor, however, "taking stock" should, at this time, not only mean a periodic re-examination of his talents, knowledge, and adherence to the faithful administration of his calling, but further, a sane evaluation of the supporting forces in his campaign to keep medicine free from political contamination.

One of the strongest, nation-wide influences of public acceptance to "the voluntary way" is the physicians' and hospitals' very own plans—Blue Shield and Blue Cross—in which they are already in collective partnership with the American people. This fact is substantiated by current Blue Shield and Blue Cross enrollment figures, which appear to belie the arguments of the proponents of national compulsory health insurance that Blue Shield and Blue Cross are not doing an adequate job of coverage of the populace.

The latest report published by the Blue Shield National Commission, covering all plans for the first quarter period of 1950, shows a total membership on March 31st of 13,276,597 as compared with 12,300,725 as of January 1st, or an increase in membership of 975,872 during the first three months of 1950. The mid-year report has not yet been published. The Blue Cross Commission report for the first half of 1950 shows a total membership on June 30th, of 38,585,953 as compared with 35,918,705 on January 1st, or an increase in membership of 2,667,248 during the first six months of 1950.

This steady, increasing acceptance on the part of a nation-wide public is reflected also in Arizona Blue Shield and Blue Cross figures. Enrollment in Arizona Blue Shield for the same period shows a total of 60,092 on June 30th, as compared with 51,837 as of January 1st, or a gain of 8,255 for the first six months of 1950. Blue Cross shows a smaller but nevertheless consistant gain of 5,302 memberships for the same period. Arizona Blue Cross enrollment stood at 115,134 on June 30th, as compared to 109,832 as of January 1st.

This definitely indicates a trend on the part of the American public toward an innate desire to obtain an "anchor to windward" against possible future hospitalization and/or surgical needs. Since most people cannot save much from their paychecks these days because of the ever-increasing cost of living, taxes, etc., they seek the best, most economical way—through prepayment.

To continue this enrollment graph on its upward climb, however, requires an equally increasing cooperation and support of the medical profession and the hospitals to help foster the acceptance and use (not abuse), on the part of their patients, of Blue Shield and Blue Cross.

These two plans, which after all are the hospitals' and doctors' own plans, should eventually cover the eligible population of the United States in sufficient numbers and in a large enough percentage as to automatically silence the guns of those who are presently plotting to "socialize" America.

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BOOK REVIEWS

NEW AND NONOFFICIAL REMEDIES—Containing Descriptions of the Articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1950. Issued under the direction and supervision of the Council of Pharmacy and Chemistry, American Medical Association. Cloth. Pp. 800. J. B. Lippincott Company, Philadelphia, London, Montreal, 1950.

This is the most recent annual publication of this volume which should be well-known to all medical people. It discusses the composition, rules and general activities of the Council. It describes those remedies which have been accepted by the Council (articles which have been official for 20 years are usually then omitted.) It describe tests and standards for nonofficial products. It lists products that are no longer accepted.

It is, therefore, a valuable reference book for the medical profession.

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. With the Comments That Have Appeared in the Journal of the American Medical Association. Cloth. Pp. 231. J. B. Lippincott Company, Philadelphia, London, Montreal, 1949.

Throughout the year, the Journal of the American Medical Association publishes reports of the Council on Pharmacy and Chemistry of the Association. These reports are special articles on many subjects pertaining to drug therapy, such as, Prescription Writing, The Costs of Drugs, New Special Groups of Drugs, and many others.

The present volume is a collection of all the reports thus made to the membership of the Association by the Council.

All physicians will find some of these reports valuable reading.

UROLOGICAL SURGERY. By Austin Ingram Dodson, M.D., F.A.C.S. The C. V. Mosby Co. St. Louis, 1950. Second Edition. Cloth $13.50. 855 pages, 645 illustrations.

The second edition of the surgical atlas has a number of improvements over the first edition; namely, improving the chapter on pre and postoperative care; reducing the stress laid on renal ptosis; including a section on retropubic surgery; and, improving the section on anesthesia. The present edition is a valuable addition to any surgeon's library since it presents in compact form the various procedures available for any urologic problem. The first section gives a very brief surgical anatomical review but fails as do all brief reviews by its brevity. Either it should be thoroughly detailed, or completely deleted, since in its present form it is useless as a real reference to anatomic structure. The chapter on urography is excellent because of the choice of illustrations in that it serves to refresh the memory, but actually does not belong in a book on surgical procedure. The chapters on pre and postoperative care, acid-base balance and fluid adminisration, blood transfusion and shock are excellent and to the point.

These should actually be the first chapters in the book, and should be read and reread by every surgeon attempting to work on the debilitated and aged patient with failing renal function, as are so many of the urologic patients. As H. H. Young states: "the surgical procedure should be but an incident in the treatment of the patient." These chapters increase considerably the value of the book over other purely surgical atlases.

The following chapters recount in detail and with good illustrations the routine procedures for the various urologic cases, beginning with renal surgery and down through the bladder and scrotal surgery. The chapter on procedures on the female urethra could be more elaborate since more and more urologic rather than gynecologic surgeons treat these afflictions, including physical therapy of incontinence.

There is a very good chapter on the treatment of the neurogenic bladder, both surgical and physical, with good diagrams of bladder irrigation equipment.

As the author states this is not an encyclopedic volume of all developed surgical procedures or their various modifications and improvements, but only of those procedures which have been tried over the years and have been proved to produce the required result when performed carefully and capably. This new edition is a book well worth having at the surgeons' fingertips.

Paul Singer, M.D., F.A.C.S.,
Phoenix, Arizona

EYES AND INDUSTRY. Second Edition. By Hedwig S. Kuhn, M.D. Price $8.50. Pp. 328 with 151 text illustrations, including 3 color plates. The C. V. Mosby, Co., Publishers. St. Louis, Missouri, 1950.

This book is intended for those interested in Industrial Ophthalmology. Included is the setting up of an eye program which has its inception in the pre-employment tests; the fitting of the eyes to the job, which is admirably brought out whether for distance or close work; and, of course, stereopsis; muscle balance; and color tests. With the high speed and precision instruments of today's industry this is indeed timely. Visual skill in the ability to produce

and the lack of it as a hazard are brought out repeatedly.

First aid instructions to employees, nurses and doctors in the care of eye injuries such as foreign bodies, flash burns, etc., are thoroughly set forth and may be considered as standards.

The 'Eye Protection' chapter illustrates every conceivable goggle, their adaptability and usefulness in many jobs, and how to set up a goggle program in a plant and keep it going.

The chapter devoted to the importance of proper illumination in our daily work contains very useful suggestions.

For the ophthalmologist the chapter on Blindness may help to set up a program on rehabilitation, if interested.

This book can be highly recommended for every library of any size especially where industrial medicine is practiced.

H. J. French, M.D.
Phoenix, Arizona

A.M.A. THANKS H.B.A. FOR ALL-OUT SUPPORT

Clem Whitaker, director, National Education Campaign, American Medical Association, in a letter to George E. Richardson, director, Hospital Benefit Association, thanked the H.B.A. for its splendid support during the recent A.M.A. advertising campaign. Here are three paragraphs of Mr. Whitaker's letter:

"This is to say a very hearty "thank you" for the all-out support of the Hospital Benefit Association during American medicine's freedom advertising campaign.

"We were very appreciative of your action in advising us of this splendid tie-in cooperation, and it will be called to the attention of the Board of Trustees of the American Medical Association at its next meeting.

"You will be interested to know that throughout the country approximately 50,000 firms ran tie-in advertising in support of this campaign, at least equalling and perhaps doubling A.M.A.'s advertising expenditure."

The Hospital Benefit Association ran special newspaper advertisements in both papers in Phoenix (*The Arizona Republic, The Phoenix Gazette*) and in both papers in Tucson (*The Arizona Daily Star, Tucson Daily Citizen*) on October 11th. And during the last three weeks of October, the H.B.A. ran a cut of The Voluntary Way Is the American Way in its regular newspaper ads in several Arizona cities.

All the H.B.A. radio-show commercials, too, were built around the A.M.A. theme The Voluntary Way . . . The Arizona Broadcasting Company—KTAR, KYCA, KYUM and KVOA—and station KOOL carried A.M.A.'s message to the people of Arizona. Stations KPHO, KIFN, KRUX, KTYL, KTUC and KNOG did the same job for the American Medical Association, through spot announcements.

The *Hospital Benefit Bulletin*, a publication to H.B.A.'s 20,000 members carried a lead story about The Voluntary Way Is the American Way . . . along with small A.M.A. tie-in mats.

While the socializers of America are making bitter attacks against the A.M.A.'s recent campaign, it is nice to know that there are so many firms and organizations willing to speak out and help reaffirm and solidify the public's faith in American medicine.

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ATOM BOMB DISCUSSED AT MARICOPA AUXILIARY MEETING

The Woman's Auxiliary to the Maricopa County Medical Society held its monthly meeting in the Nurses' Lounge at Good Samaritan Hospital on November 6th. Mrs. Karl Harris presided at the business session.

The guest speakers were introduced by the Social Chairman, Mrs. Robert Cummings. The topic for discussion was The Atom Bomb. Doctor Donald Polson gave a brief description of the physics and mechanics of the bomb and an explanation of its destructive powers. He described the three phases of destruction as they affect humans i. e. explosion, burning, and radiation.

Doctor Polson was followed by Mr. Frank Williams, director of the Division of Health Education for the State Department of Public Health, who presented Arizona's plan to care for evacuees in the event that a bombing should occur in one of the critical areas on the west coast.

Mr. Williams showed the restricted Navy film "Operations Crossroads" taken during the test explosions at Bikini.

After the meeting adjourned, the doctors joined their wives for the social hour. Refreshments were served by Mrs. Clark McVay and her committee.

Respectfully submitted,
Mrs. John Eisenbeiss
Phoenix

LEGISLATION

The Woman's Auxiliary to the Arizona Medical Association can be a strong force in helping to promote wise and adequate health legislation. It can be equally effective in defeating legislation that is detrimental to the public welfare. This, however, can be accomplished only if its legislative committees are well organized and actively operating on a state and county basis.

Your legislative chairman has outlined a program that will dovetail with that of our Medical Society. This program was approved by the Chairman of the legislative committee of the Arizona Medical Society. It will fall roughly into two classifications.

1. The A.M.A. National Education Campaign.

a. Promoting voluntary health insurance.
b. Defeating compulsory health insurance.
c. Defeating "fringe bills".

2. General Legislation on Health and Related Matters.
   a. Basic Science Laws
   b. Public Health Measures
   c. Hospital Construction Bills
   d. Measures relating to Medical Education.

The function of the legislative committee, through its local chairman will be as follows:

1. To inform the entire Auxiliary membership as to the pros and cons of pending bills and the necessity for legislation to correct given health problems. This educational process can best be carried out by having the legislative chairman or one of the members lead discussions dealing with the subjects. National has suggested that the program chairman allow at least ten minutes on every county program for the legislative chairman or her committee to tell of the latest developments in Washington or on the state or local level. From time to time during the year your state legislative chairman will provide pertinent literature for the auxiliary members.

2. Activate all Auxiliary members to promote or oppose vigorously health legislation as the occasion demands. This program will include:
   a. Letter writing to Congressmen, Senators and State Legislature.
   b. Distribution of informative material on particular health legislation to the public.
   c. Assistance to the Medical Society's legislative committee in any way they may request.

3. Offer consultant service to other organizations on health legislation. This can be done by the local chairmen building a file with the material emanating from the Washington office of the A.M.A. This will be augmented by the state legislative chairman on the state level. The availability of this file is to be made known to the various women's organizations in the community.

The success of this program is based on the individual auxiliary members interest, responsibility and cooperation. During these troubled times of pressure legislation it is important that we, too, make our wishes known to our representatives.

Respectfully submitted,
Mrs. Louis Hirsch
(Legislation Chr.), Tucson

PIMA NEWS

MRS. ROY HEWITT HOSTESS TO GROUP OF MEDICAL WIVES

Woman's auxiliary to the Pima County Medical Association held the first general meeting of the year at the Pioneer Hotel ballroom Tuesday evening. Fifty members were present.

Preceding the general meeting, Mrs. Roy Hewitt entertained board members at a buffet luncheon. Mrs. Hewitt presided and introduced new board members: Mrs. Brick Storts, president-elect; Mrs. Leo Kent, first vice-president and membership chairman; Mrs. Richard Hausmann, second vice-president and program chairman; Mrs. Darwin Newbauer, recording secretary; Mrs. Kenneth Baker, treasurer; Mrs. David Engle, corresponding secretary.

Mrs. J. K. Bennett, public relations; Mrs. Blair Saylor, health chairman; Mrs. Jackman Pyre, today's health; Mrs. Clyde Flood, publicity; Mrs. Hugh Thompson, legislation; Mrs. Stanley Kitt, bulletin; Mrs. B. B. Edwards, philanthropic chairman.

At the general meeting reports of officers and standing committees were given outlining plans for the year. One of the principal projects of the State Medical Auxiliary is the Nurses Loan Fund which is supported by all county auxiliaries. Mrs. Max Costin, Tucson, member of the state committee, announced that two girls are now in training under the fund, one from Tucson and one from Phoenix Mrs. Kenneth Baker, captains 20 auxiliary members who are soliciting doctors and employees for the Community Chest drive. The organization voted to provide toys and books for the Crippled Children's Ward at the County Hospital throughout the year.

Mrs. Royal Rudolph, president-elect to the state auxiliary gave a talk on the aims and purpose of the Medical Auxiliary. Mrs. Hiram Cochran spoke on the National Auxiliary Convention held in San Francisco in June where delegates were urged to stress greater participation of members in PTAs, Women's Clubs, Civic activities and nurse recruitment.

ORDER YOUR BULLETIN

Although most of you are familiar with the Woman's Auxiliary to the American Medical Association's official publication, the Bulletin, repetition if often valuable.

As members of the Auxiliary, we have a duty to ourselves and to the organization to subscribe to its magazine. The material in the Bulletin is selected by the Publications Committee with the idea of giving to the members of the Woman's Auxiliary information and suggestions that will be of interest and help to them in their Auxiliary activities. It helps them to answer questions that the general public are interested in. As wives of physicians, it is our duty to be informed of the activities and policies of the medical profession. Every physician's wife should subscribe to and read the Bulletin to keep informed and up to date on Auxiliary and American Medical Association affairs.

Order your Bulletin as soon as possible from your County Bulletin Chairman so that you do not miss a single one of these vital issues. If you are a member-at-large, you can place your order directly with the State Publications Chairman, Mrs. Joseph C. Ehrlich, 310 West Granada Road, Phoenix, Arizona. The subscription must be prepaid and is One Dollar for four issues, published quarterly.

We need your cooperation.

Mrs. Joseph C. Ehrlich
State Bulletin Chairman Phoenix

SOUTHWESTERN MEDICAL ASSOCIATION

The Southwestern Medical Association met in Phoenix, October 26th, 27th and 28th. The Maricopa County Women's Auxiliary were hostesses to the wives of the visiting doctors and a complete round of social activity was planned under the leadership of Mrs. Robert Cummings.

Mrs Preston Brown and her committee were stationed at the Westward Ho Hotel to greet and register the visitors

A tea, at the home of Mrs. Thomas W. Woodman, was held Thursday afternoon under the chairmanship of Mrs. John R. Green. The tea table was graced by a floral arrangement of blue delphinium and pink roses in a silver bowl and gray iridescent candles in silver candelabra complimented the arrangement. Presiding at the table were Mrs. Joseph Madison Greer, Mrs. Henry Williams, Mrs. Dudley Fournier and Mrs. Reed Shupe. Mrs. Woodman, Mrs. Carlos Craig and Mrs. Karl Harris, Maricopa County President, greeted the guests upon their arrival. Notable among the guests were Mrs. M. M. Wintrobe of Utah and Mrs. Salvadore Zubiran of Mexico City, wives of doctors on the speakers panel.

That evening Bud Brown's Barn was the scene of a barbecue dinner and dance. An evening of informal gaiety in good Western fashion was enjoyed by all who attended.

Mrs. Charles Van Epps and her committee arranged a brunch Friday morning at the Arizona Country Club after which the guests were invited to stay for cards.

The final event, the annual dinner dance, was held at Camelback Inn. The Society and the Auxiliary were hosts and hostesses at a cocktail party held in the lounge after which a sumptuous buffet dinner was served. The guests of honor, seated at a U shaped table in the dining room, were introduced by Dr. I. J. Marshall, President of the Southwestern Medical Association The panel of speakers were presented with hand tooled leather silver buckled belts in token of appreciation for their contribution to the scientific sessions. Dancing followed the dinner.

Thanks to Mrs. M. W. Merrill for providing transportation; to Mrs. L. L. Tuveson, custodian of funds, and to Miss Alma Alkire, Assistant Secretary of the Maricopa County Medical Association, and a staff from the Junior Chamber of Commerce for registering the doctors.

Mrs. Robert Cummings
General Chairman
Phoenix

GILA COUNTY MEDICAL AUXILIARY NEWS

Tentative plans are being made for a dinner meeting to be held at the Cobre Valle Country Club.

Mrs. A. J. Bosse, County President, gave birth to a baby girl on October 20th.

Mrs. Wm. Bishop, Secretary-Treasurer, had a baby girl in September. Seems the stork is still hovering over Gila County Auxiliary members and the birth rate will be increased by two in the near future.

Dr. and Mrs. Cyril Cron spent six weeks vacation in Mexico going as far south as the Isthmus of Tehuantepec. They went down over the new highway from El Paso and Juarez.

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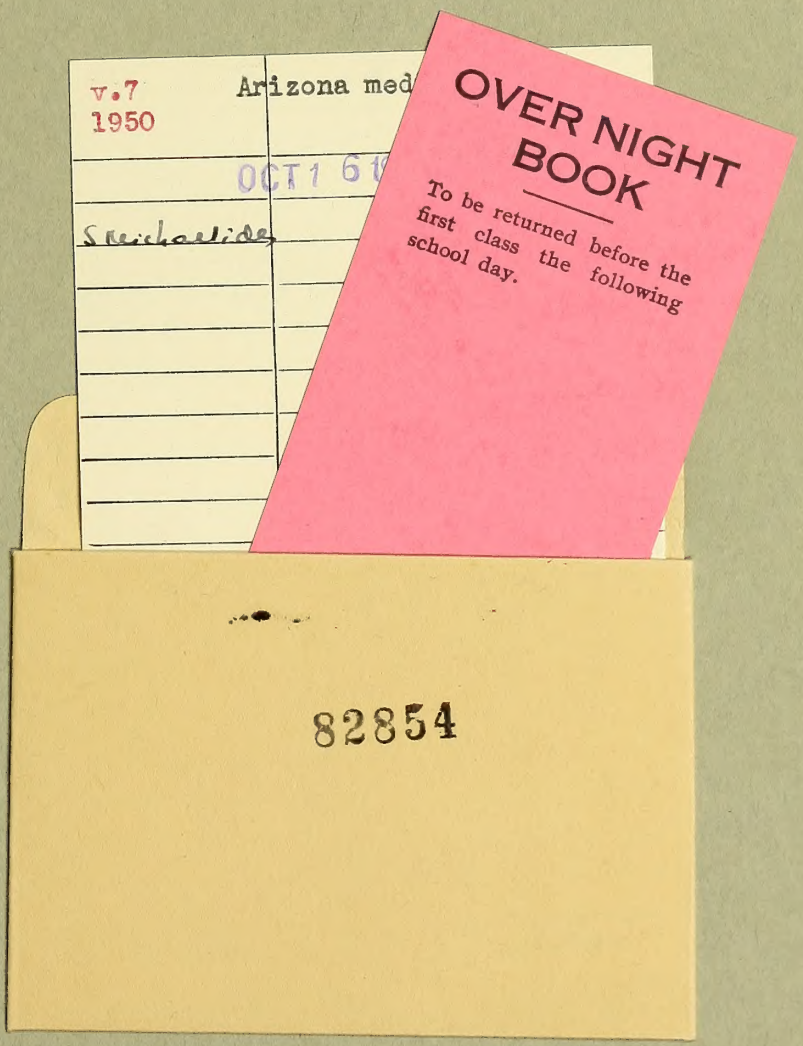
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